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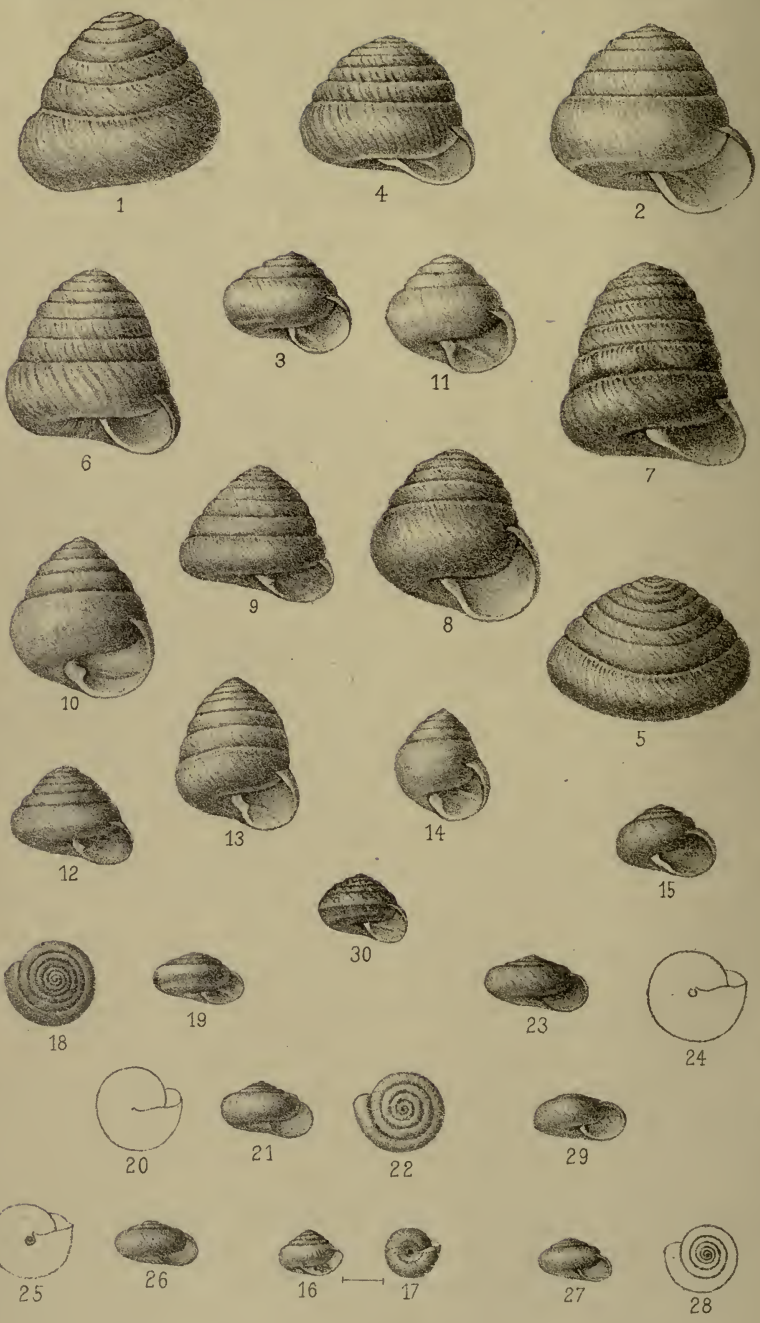
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SECOND SERIES: PULMONATA

# MANUAL

OF

# CONCHOLOGY;

## STRUCTURAL AND SYSTEMATIC.

WITH ILLUSTRATIONS OF THE SPECIES.

BY GEORGE W. TRYON, JR.

CONSERVATOR OF THE CONCHOLOGICAL SECTION OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.

VOL. III.

HELICIDÆ:—VOL. I.

PHILADELPHIA:

PUBLISHED BY THE AUTHOR,

*Academy of Natural Sciences, Cor. 19th & Race Sts.*

1887.

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Wm. P. Kildare, Printer, 734 and 736 Sansom Street, Philadelphia.

# MANUAL OF CONCHOLOGY.

## Family *HELICIDÆ*.

Shell spiral, elongated, bulimiform, turbiniform, trochiform, depressed, lenticular, or planorbiform, usually thicker than in the Zonitidæ, and also less transparent than in that family; the aperture either edentulous or armed with teeth, the lip usually reflected.

Animal capable of complete retraction within the shell, the tail without mucous gland or projection; mouth always provided with a jaw, which is striate, ribbed, sulcate or plicate, sometimes composed of several imbricating pieces; radula composed of many transverse horizontal series of teeth, the centrals tricuspidate, about the size of the laterals, laterals bicuspid, or tricuspid with the interior cusp obsolete, marginals usually wider than high, short, with two or three small cusps (Struct. and Syst. Conch., i, t. 13, f. 59).

As to the shell of the heliciform groups it is usually readily distinguished from Zonitidæ by the reflected lip of the aperture, which is a character distinguishing most of the larger and most important sections or groups, but this difference disappears in the Patulæ, for example, in which the lip is simple and the shell thinner; however, the Patulæ are commonly darker in color, often with characteristic chestnut markings, and more rugosely sculptured surface than most Zonitidæ.

In the soft parts the most obvious distinction is the want of a caudal mucous pore in the Helices, and their possessing a sculptured jaw. Typically, there is a distinction in the dentition, although in some species the lateral teeth of Helices take on a pseudozonitoid appearance; even in such cases the extreme marginals in Helix remain short and very obtuse.

The family thus outlined comprises several thousand species, most of the land-snails, in fact; including not only the numerous groups of Helix proper, but those of Bulimus, Partula, etc., as well. As the consideration of the species will occupy the pages

of some volumes of this work—several of them for Helix alone—the usual synopsis of genera is omitted (it may be found in Structural and Systematic Conchology, iii, 28–58), and I proceed at once to the consideration of the

## Genus HELIX, Linnæus.

Shell of variable form, orbicular, convex, planorboid, trochiform, subturriculated or short bulimiform (monstrosities sinistral, or with whorls more or less uncoiled), smooth, rugose, striate, ribbed, tuberculate, sometimes pilose, often variegated in color; the aperture oblique, oval or semilunar, with or without teeth on the interior of the lip, or parietal wall or columella; the lip usually reflected, sometimes internally thickened, sometimes simple and sharp; umbilicus varying from covered to widely open.

No more precise diagnosis can be given of a genus in which the conchological features vary so much as they do in Helix. Albers, Beck, Swainson, Férussac, the brothers Adams, Pfeiffer, and many others, have proposed a great number of groups ranking from sections merely, to genera, but which agree in possessing but little individuality in a systematic, although highly important in a developmental aspect. In fact, the species in these groups very generally indicate more strongly here than in any other branch of Conchology, both by their general facies and by the territory peopled by them, their common ancestry. This is possibly the effect of a more recent appearance and a more rapid development than in the marine groups of mollusks, the extinct forms extending no further back than the cretaceous period in Europe and the somewhat later Laramie in the United States, and altogether very few in number, whilst the number of species now living is not far from four thousand; indeed, it is not improbable that much of the differentiation has taken place within the historic period.

The number of species of Helix, although considerably reduced in late years by the elimination of the genera comprised in the family Zonitidæ, still remains so large that further disintegration would be very desirable, were it practicable; unfortunately, no divisions have been proposed having the distinctive characters usually assigned to genera and subgenera. As a mere

convenience, the names of these ancestral-geographical groups might be used in a generic sense, if only we could cease to apply the name Helix to the whole of them.

Considering the above circumstances, I propose to use the generic and subgeneric divisions which have been formed under Helix as Sections only, and those sections which have certain common relationships as composing Groups, the latter as well as the former, although in a larger sense, indicating common ancestry and distribution. In a general way these groups will advance from those in which the characters most resemble the Zonitidæ towards what has been usually accepted as the typical or ideal Helix, and thence towards the next-coming genus Bulimus. As I have stated that the characters distinguishing these sections and groups have but little systematic value, it will be readily understood that they are not readily expressible; hence no useful synopsis or comparative table of them is possible, and I shall simply take them up in succession in proceeding immediately with the descriptions of the species.

### Group 1. SAGDA, Beck, 1837.

Shell subperforate, or imperforate, globosely conoidal or depressed, diaphanous; whorls narrow, aperture with interior revolving lamellæ, peristome simple, sharp. Jaw oxygnathus.

*Jamaica.*

#### Section Sagda (*sensu stricto*).

Shell subimperforate, globosely conoidal; spire more or less elevated, with obtuse apex; eight or nine narrow whorls, the last flattened at the base, excavated around the umbilical region; with internal revolving lamellæ; columella short, oblique, dilated at the base; aperture obliquely semilunar, peristome simple. *Epistyla*, Swainson, 1840, is a synonym.

#### Section Hyalosagda, Albers, 1860.

Shell scarcely perforated, depressed, hyaline, thin; whorls 5–7, narrow, the last excavated at the base; aperture obliquely lunar (with or without a basal lamella); peristome acute, columellar margin scarcely dilated, slightly reflexed, more depressed, but with the same narrow whorls as in the typical section; most of the species have no internal lamella.

(Section Sagda, Beck, 1837).

H. alligans, C. B. Adams. Pl. 1, figs. 1–3.

Imperforate, globosely conoidal, white, under a brownish-yellow epidermis, incremental striæ regular, stronger on the spire than on the body-whorl; whorls 8, narrow, aperture with a deep-seated strong basal lamella. Diam. 1·25 inches.

*Jamaica.*

The synonyms are *H. epistylium*, Pfr. (not Müller), *H. alveolata*, Beck?

H. epistylioides, Fér. Pl. 1, fig. 4.

Solid, imperforate, obliquely costate, white, under a corneous yellow epidermis; whorls 9, the last scarcely wider than the others, obsoletely angulated, aperture with an evanescent deep-seated revolving basal lamella. Diam. 1 inch.

*Jamaica.*

*H. alveolata*, jun., Beck, is referred here by Pfeiffer.

H. connectens, C. B. Adams. Pl. 1, fig. 5.

Imperforate, hemispherical, white under a corneous epidermis, somewhat rugosely sculptured by incremental striæ; whorls 9, very narrow, a little convex, the last slightly convex below, concave in the umbilical region; aperture rather narrow, transverse, the basal lamella strong, acute, deep-seated. Diam. 1 inch.

*Jamaica.*

H. Jayana, C. B. Adams. Pl. 1, figs. 6, 7.

Imperforate, conoidal, smoothish, lightly striulate, white under a corneous epidermis, spire conoidal, obtuse; whorls $9\frac{1}{2}$, flattened, the last subangulated, base deeply excavated; columella short, somewhat oblique, basal lamella deep-seated. Diam. 1 inch.

*Jamaica.*

This is *H. Cookiana* of Pfr. (not Gmel.), in part, *H. alligans*, Reeve (fig. 7).

H. australis, Chemn. Pl. 1, fig. 8.

Imperforate, solid, obliquely striate above, light yellowish corneous, spire somewhat acute, suture impressed, margined; whorls 8, a little convex, slowly increasing, periphery very obsoletely angulated, base more lightly striated, globose, impressed in the middle, aperture almost vertical, with an

interrupted basal lamella, columella slanting, callously thickened. Diam. 22 mill.

*Jamaica.*

This is *H. Foremaniana*, Pfr. (not Adams); *H. Cookiana*, Gmel.; *H. conica*, Swains., and *H. epistylium*, Dillw.

H. ALVEARE, Pfr. Pl. 1, fig. 9.

Imperforate, solid, obliquely striate, white under the hirsute fulvous epidermis; whorls 10, narrow, the last obsoletely angulate near the base; aperture with a deep-seated basal lamella, the columella with a subspiral lamella, scarcely visible without. Diam. 1 inch.

*Jamaica.*

H. FOREMANIANA, C. B. Adams. Pl. 1, fig. 10.

Imperforate, somewhat solid, smoothly striate, alabastrine; whorls 7, a little convex, the last globose, base not impressed; a strong nodiform tooth on the columella, and an acute elevated lamella (with rarely a second smaller one) on the base of the aperture. Diam. 18·5 mill.

*Jamaica.*

H. TRIPTYCHA, Shuttl. Pl. 1, fig. 11.

Imperforate, globulose, thin, scarcely striulate, shining, diaphanous, alabastrine; whorls 6, slowly increasing, suture submargined, last whorl inflated, periphery subangulated, base scarcely impressed, columella twisted, truncate at base, callously dentate, basal margin with an acute entering lamella, and a smaller one near the columella. Diam. 14 mill.

*Jamaica.*

H. SPICULOSA, Shuttlew. Pl. 1, fig. 12.

Imperforate, campanulately semiglobose, solid, lighly striate, whitish under a deciduous yellowish epidermis; whorls 8, a little convex, apex subacute, last whorl obsoletely angulated, base excavated in the middle, columella callously dentate, aperture with a revolving basal lamella, scarcely reaching the margin. Diam. 14 mill.

*Jamaica.*

H. TORREFACTA, C. B. Ad. Pl. 1, fig. 13.

Imperforate, somewhat solid; whorls 9, a little convex, the earlier ones elegantly striate, the later ones smoothish, the last with subangulate periphery, and scarcely impressed base;

columella somewhat straightly descending, twisted, thickened, aperture wide, with a strong basal lamella. Diam. 16 mill.

*Jamaica.*

H. PILA, C. B. Adams. Pl. 1, fig. 14.

Imperforate, thin, smooth (very minutely lightly decussated), diaphanous, whitish, suture deep; whorls $6\frac{1}{2}$, convex, the last globose, base not impressed; columella short, subvertical, dentately dilated; aperture widely lunar, with an acute elevated lamella below the middle of the base. Diam. 12 mill.

*Jamaica.*

H. LAMELLIFERA, C. B. Ad. Pl. 1, fig. 15.

Imperforate, striated, the yellowish corneous epidermis subpustulose; whorls $5\frac{1}{2}$–6, a little convex, moderately increasing, the last more convex, with scarcely impressed base; columella oblique, callously thickened, aperture obliquely lunar, base with a median lamella, evanescent in front. Diam. 10 mill.

*Jamaica.*

H. BLANDII, Weinland. Pl. 1, figs. 16, 17.

Very narrowly umbilicated, rather thin, scarcely striulate, whitish; whorls 6, narrow, very slowly increasing, the last a little compressed on the sides, base convex, a little excavated in the middle; aperture vertical, widely lunar, with an interrupted or continuous spiral basal lamina, and nodular columella.

Diam. 4 mill. *Port au Prince, Haiti.*

Section HYALOSAGDA, Albers, 1860.

H. OSCULANS, C. B. Ad. Pl. 1, figs. 18, 19.

Imperforate, depressed, thin, striulate, shining, pellucid, hyaline-white; spire very short, convex, suture smooth, submargined; whorls $6\frac{1}{2}$, scarcely convex, base subexcavated; aperture obliquely lunar, columellar margin subcallous, nearly horizontal, basal lamella strong, conspicuous. Diam. 13 mill.

*Jamaica.*

Var. DELAMINATA, Adams MS. The lamella absent.

H. HALDEMANIANA, C. B. Adams. Pl. 1, figs. 20–22.

Imperforate, striulate, thin, shining, pale greenish or corneous, hyaline, spire very obtuse, suture margined; whorls 7, scarcely convex, base deeply excavated in the middle. Diam. 13 mill.

*Jamaica.*

*H. arboreoides*, Adams, is a synonym.

H. SIMILIS, C. B. Adams. Pl. 1, figs. 23, 24.

Perforate, depressed, rather thin, somewhat distantly striulate, shining, diaphanous, whitish, spire scarcely convex, the apex submucronate; whorls 6, narrow, slightly convex, the last laterally subcompressed, base a little excavated. Diam. 13 mill.

*Jamaica.*

H. HOLLANDI, C. B. Adams. Pl. 1, figs. 25, 26.

Differs from the preceding species in the whorls being more depressed, base plane, aperture wider. Diam. 11 mill.

*Jamaica.*

H. AMBIGUA, C. B. Adams. Pl. 1, figs. 27, 28.

Differs from *H. similis* in having a more elevated spire, columella less oblique, anterior part of the lip directly transverse, umbilicus smaller. Suture deeper than in *H. similis* or *H. Haldemaniana*, between which this shell is in most characters intermediate. Diam. 11·5 mill.

*Jamaica.*

H. BREVIS, C. B. Adams. Pl. 1, fig. 29.

Narrowly umbilicated, depressed, subdiscoidal, thin, smooth, shining, whitish; spire scarcely convex; whorls $4\frac{1}{2}$, flattened, slowly increasing, the last depressed, base subplanulate.

Diam. 3·75 mill.

*Jamaica.*

H. CIRCUMFIRMATA, Redfield. Pl. 1, fig. 30.

Umbilicated, conoidally depressed, thin, lightly obliquely striated; fulvous corneous, with irregular light chestnut strigations; suture impressed; whorls $7\frac{1}{2}$, slowly increasing, the last with angulated periphery and more convex base; aperture with an acute white spiral lamina below the periphery, visible through the shell, columella with a spiral callus. Diam. 10·5 mill.

*Bermuda.*

H. DISCREPANS, Pfr.

Differs from the preceding species in being more solid, the spire less elevated, the peripheral carina more acute, a basal interior carina reaching the margin of the aperture, and the columella subdentate within near its insertion. Diam. 10·25 mill.

*Bermuda.*

Unfigured.

## Group II. LEUCOCHROA, Beck, 1837.

Shell imperforate to moderately umbilicated, globose or depressly globose, thick, white, or dull-colored, cretaceous; whorls about five, usually with more or less angulated periphery, the last slightly descending in front; peristome simple, thickened, columella callously dilated, often covering the umbilicus. Jaw oxygnathous. *Circum-Mediterranean Region.* H. CANDIDISSIMA, Drap.

The synonyms are *Calcarina*, Moquin-Tandon, 1845, and *Iberus* (in part), H. and A. Adams, 1855.

### Section LEUCOCHROA (*sensu stricto*).

Aperture broadly lunar, rounded, often with a small outer angle, corresponding with the peripheral carina.

### Section MIMA, Westerlund, 1866.

Aperture very angular, much thickened within, especially above, where it develops two strong tubercles or tooth-like projections subconfluent into one, narrowing the mouth.

On account of the ribless jaw of *H. candidissima*, and for other peculiarities, Dr. von Martens classed this group with the Zonitidæ. The investigations of Binney have shown that *H. Boissieri*, also a Leucochroa, has a ribbed jaw and the dentition of Helix. The heavy shells, and absence of a mucous pore are characters which serve to confirm the classification here adopted.

(Section LEUCOCHROA, *sensu stricto.*)

H. CANDIDISSIMA, Drap. Pl. 2, figs. 31–35.

Subimperforate, globose, solid, cretaceous; whorls 5, rather flattened, the upper ones carinate above the suture, carina afterwards becoming evanescent, the last deflected in front; peristome subpatulous, thickened within. Diam. 16–25 mill.

*Southern France, Italy, Algiers.*

Var. RIMOSA, Jan. Fig. 34.

Subcarinate, umbilicus rimose. Diam. 20 mill.

*H. depressa*, Mühlf., is a synonym.

Var. HIEROCHUNTINA, Boissieri. Fig. 35.

H. Bætica, Rossmässler. Pl. 2, figs. 36, 37.

Globose, solid, whitish ash-color; whorls $5\frac{1}{2}$, very slowly increasing, the upper ones carious-rugulose, the penultimate about as broad as the last, the last more or less angulated on the periphery, rounded in front; aperture widely lunar, angulated exteriorly, peristome internally sublabiate. Diam. 25 mill.

*Spain*, *Morocco*, *Algiers*.

Var. Alexandrina, Fagot.

Smaller, conical bullet-shaped, penultimate whorl viewed from above appearing broader than the last one. Diam. 14–15 mill.

Near *Alexandria*, *Egypt*.

H. Thayaca, Bourg. Pl. 2, fig. 38.

Imperforate, opaque, solid, finely striated, brownish olivaceous; whorls 6, periphery obtusely angulated. Diam. 27 mill.

*Constantine*, *Algiers*.

H. titanodolema, Pechaud.

An unfigured species from the same locality as the above, but white, the whorls more drawn out, the base more swollen, the last whorl suddenly deflected anteriorly.

H. Otthiana, Forbes. Pl. 2, figs. 39–44.

Umbilicated, carinate, striate, white, suture subcrenulated; whorls 5, planulate, the last scarcely deflected in front.

Diam. 23 mill.

*Algiers*.

Var. Jeannotiana, Terver. Figs. 41, 42.

More depressed and smaller, umbilicus open, periphery sharply carinated.

*H. piestius*, Bourg., is a synonym.

Var. chionodiscus, Pfr. Figs. 43, 44.

Umbilicus nearly covered, convexly depressed above, periphery with a strong wavy carina, becoming obsolete towards the aperture; whorls 5, the last abruptly deflected in front.

Diam. 26 mill.

Bourguignat has distinguished two forms of this Var. under the names of *oxygira* and *depressa*.

Var. speironomala, Bourg.

Larger, much more compressed and sharply keeled, the umbilicus open and rather broad, lip drawn down or overhanging above.

H. ARGIA, Bourg. Pl. 2, figs. 45, 46.

Umbilicus nearly covered, shell solid, cretaceous, shining, irregularly striulate and obsoletely malleated; whorls 6, slowly increasing, sharply keeled, the keel becoming less strong or finally obsolete on the last whorl. Diam. 23 mill.

*Bona, Algiers.*

Probably only another variety of the last species.

H. FIMBRIATA, Bourg. Pl. 2, figs. 47, 48.

Covered perforate, subglobose, solid, cretaceous, subplanulate above; whorls 5, a little flattened, the first smooth, the following subcarious, narrowly fimbriately carinated, the last deflected in front, rounded, periphery obsoletely subangulated.

Diam. 16 mill.

*Palestine, Mesopotamia.*

Var. ILLICITA, Mousson.

Whorls slightly convex, suture incised, not carinately margined above, sculpture indistinct, carina evanescent anteriorly, margin of insertion callous, subthickened.

Var. MYOPA, Westerl.

Shell smaller, globosely contracted; suture well impressed, tuberculately erose; aperture rounded, peristome thicker.

Diam. 12 mill.

Var. VARICOSULA, Westerl.

Entire upper surface regularly finely granulated, periphery with a keel and the trace of another above it.

H. PROPHETARUM, Bourg. Pl. 2, figs. 49, 50.

Covered perforate, depressed, solid, striulate, cretaceous, white, suture impressed; whorls $4\frac{1}{2}$, flattened or slightly convex, the last very obsoletely angulated, rounded in front, shortly and suddenly deflected. Diam. 16 mill.

*Palestine.*

Var. $\beta$ is more depressed, the last whorl obscurely bicarinate, flattened below; Var. $\gamma$ is less depressed, last whorl subrotund, more convex below, peripheral extremities joined by a stronger callus.

H. CARIOSULA, Mich. Pl. 2, figs. 51, 52.

Subimperforate, carinate, globosely convex above, carious, somewhat flattened below, soiled white, with a tubercularly eroded filiform sutural carina; whorls 5, somewhat flattened; upper margin of aperture subdeflected. Diam. 18 mill.

*Algiers.*

H. MAYRANI, Gassies. Pl. 2, figs. 53–55.

Imperforate, carinate, granulately crispate under the rusty epidermis, flatter below, flesh white, with a filiform peripheral carina, evanescent in front; whorls 5–6, convex, the last with radiating striæ above, suture profound. Diam. 19–20 mill.

*Algiers.*

Var. SUBCARIOSULA, Bourg. Fig. 55.

Granulations stronger, base less swollen, keel sharper.

*H. Kobeltiana*, Debeaux, is a synonym.

Var. DEBEAUXI, Kobelt.

Globosely trochoidal, calcareous, soiled white; whorls very distinctly crenated at the suture, tuberculosely rugose, the last whorl obsoletely angulated, smoother and shining below, base convex, excavated around the umbilical region.

H. OCTINILLA, Bourg.

Umbilicus covered or rimate, turbinately convex above, planulate below, whitish, strongly rugose above; whorls $5\frac{1}{2}$, strongly tuberculate at the suture, carinate below, the last compressedly carinate, the base subtumid, radiately plicately striate. Diam. 17–22 mill, alt. 10–12 mill.

*Oran, Algiers.*

Unfigured.

*H. cariosula*, var. *vetula*, Westerl., is a synonym.

H. CARIOSA, Olivier. Pl. 2, figs. 56–59.

Umbilicated, carinated, convex, white, rough, crispately rugulose; whorls 5, the last scarcely deflected in front, angulated around the wide, deep umbilicus. Diam. 18 mill.

*Syria.*

Var. NAZARENSIS, Mouss.

Half bullet-shaped, swollen, the last whorl angulated only at the periphery, upper surface thickly grained.

Var. CRASSOCARINA, Mouss.

With strong carinæ at the periphery and surrounding the umbilicus.

Var. AMPHICYRTA, Bourg. Figs. 58, 59.

More flattened, compressed, last whorl not descending in front, aperture more angular, subtetragonal, last whorl strongly bicarinate, umbilicus widely conical.

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*Canary Islands Species, doubtfully referred here.*

H. ULTIMA, Mousson. Pl. 2, figs. 60–62.

Umbilicated perspectively, cretaceous, substriated, with more or less oblique granulations, white, apex grayish corneous, suture linear; whorls 6, slightly convex, the upper ones crenately carinated, the last not descending in front, more convex, obtusely carinated or angulated on the periphery, narrowly rounded at the umbilicus; peristome straight, acute. Diam. 14 mill.

*Ins. Fuerteventura, Canary Islands.*

H. PRESSA, Mousson. Pl. 2, figs. 63–65.

More depressed than the preceding species, the granular striæ smaller, the umbilicus wider. Perhaps only a variety.

Diam. 12 mill.

*Fuerteventura, Canary Islands.*

H. ACCOLA, Mousson. Pl. 2, figs. 66, 67.

Umbilicated, cretaceous, striulate, with minute rugæ or granulations, white, suture subimpressed; whorls $5\frac{1}{2}$, a little convex, the upper ones obtusely nodulously carinate, the last not descending in front, periphery obtusely angulated or carinated, somewhat flattened below, narrowly rounded at the umbilicus. Diam. 9 mill.

*Fuerteventura, Canary Islands.*

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H. HISPANICA, Westerlund (unfigured). *Spain.*

Section MIMA, Westerlund, 1886.

H. BOISSIERI, Charpentier. Pl. 2, figs. 68, 69.

Covered perforate, thick, irregularly striated, a little shining, cretaceous, white; whorls 5, slightly convex, the last deflected

anteriorly; aperture with thick lip, projecting internally above in two thick, subconfluent tubercles. Diam. 25 mill.

*Arabia Petræa*, *Judea*.

Bourguignat has described a var. ZONATA.

H. FILIA, Mousson. Pl. 2, figs. 70, 71.

Imperforate, rather solid, striulate, shining, white; whorls 4, a little convex, the last subdepressed, rounded, constricted and deflected in front; aperture with a parietal tubercle at the junction of the upper lip, lip irregular, profoundly sinuous.

Diam. 17 mill. *Palestine.*

## Group III. PATULA, Held, 1837.

Shell umbilicated, discoidal, turbinated or trochiform, rugose or strongly striated, usually horn-colored, frequently strigated, maculated or banded with chestnut; whorls gradually enlarging, lip of the aperture simple, sharp; jaws smooth or slightly striated, with a more or less marked median projection. There are several hundred species; distribution universal. The synonymy includes *Delomphalus*, Agassiz, 1837; *Euryomphala*, Herm., 1846, and *Discus* (in part), Ads., 1855.

The following sections have been proposed:

### Section DISCUS, Fitzinger, 1833.

Shell depressed, widely umbilicated, periphery rounded.

This is the typical division, of which H. ROTUNDATA, Müll., may be considered an example. The species inhabit *Europe*, the *United States*, *Polynesia*, etc.

Subsection PUNCTUM, Morse, 1864.

Shell minute, orbicularly depressed, umbilicus usually moderate or narrow, surface costate or strongly striated. Jaw composed of distinct quadrate overlapping plates, or imbricately folded. Type H. PYGMÆA, Drap. *Europe.*

I place in this group, as synonyms, *Patulastra*, Pfr., 1878, and *Carthæa* and *Phryxgnathus*, Hutton.

Subsection PLANOGYRA, Morse, 1864.

Shell minute, perfectly flat above, umbilicus moderate; whorls very convex, the last one sharply ribbed. H. ASTERISCUS, Morse. *United States.*

Subsection GONIODISCUS, Fitzinger, 1833.

Shell depressed, widely umbilicated, periphery angulated. Type H. SOLARIA, Menke. *Europe.*

Subsection AMPHIDOXA, Albers, 1850.

Widely umbilicated, thin, depressed, plane above, convex below, with close, rounded volutions and impressed sutures; last whorl narrow; aperture slightly oblique, rounded lunate; peristome simple, acute, margins joined. Type H. MARMORELLA, Pfr. *Ins. Juan Fernandez.*

*Stephanoda*, Albers, 1850, may be placed here as a synonym.

Subsection MACROCYCLOIDES, Martens, 1867.

Shell depressed, shining, striate, hyaline, base slightly excavated, showing all the whorls, peristome acute, the margins somewhat approaching. Type H. OBSCURATA, Adams and Reeve. *East Indies.*

Subsection TRICHODISCUS, Strebel and Pfeffer, 1879.

Shell depressed, widely umbilicated, banded, beset with fine bristle-bearing warts; peristome a little expanded. Type H. COACTILIATA, Fér. *Mexico, Central America.*

Subsection THYSANOPHORA, Strebel and Pfeffer.

Shell flat or subconical, widely umbilicated, brown, with longitudinal plaits and rows of epidermal fringes; aperture simple. Type H. IMPURA, Pfr. *Mexico.*

Subsection PYRAMIDULA, Fitzinger, 1833.

Shell pyramidal, minute, costate or strongly striate, umbilicus moderate or narrow.

*Microconus*, Strebel, 1880, appears to be synonymous.

Type H. RUPESTRIS, Drap. *Europe.*

Subsection ACANTHINULA, Beck, 1846.

Shell perforate, globosely turbinated, with a brownish, plicately ribbed, often aculeate epidermis; whorls 4–5; aperture rounded, peristome thin, somewhat expanded, its extremities approaching.

The buccal plate is transversely and longitudinally striate, its edge slightly indented, with a middle projection. Viviparous, containing embryos in various stages of development at the

same time. H. ACULEATA, Müll. *Europe.* The *United States* and *West Indies* also have representatives.

*Zoogenites*, Morse, 1864, is a synonym.

Section ANGUISPIRA, Morse, 1864.

Shell large, striate or finely ribbed, depressed-turbinate, horn color, striped or banded with brown, umbilicus moderate. H. ALTERNATA, Say. *United States.*

Section ENDODONTA, Albers, 1850.

Usually depressed, with moderate or wide umbilicus, rounded or carinated periphery, aperture with parietal or lip lamellæ, or both, surface usually costate or rugosely striate, brownish or radiatingly variegated with yellowish and chestnut. H. HUAHEINENSIS, Pfr. Mostly *Polynesian.*

*Pitys*, H. and A. Adams, 1855, is a synonym. Mr. Garrett attempts to divide the species into two groups, *Endodonta* and *Pitys;* there being differences in the periphery, umbilicus, number and situation of the teeth, etc. I at first endeavored to make a somewhat similar arrangement of the species, corresponding with those of the edentulate Patulæ, but have not succeeded; and in grouping the species I have recurred to Pfeiffer's artificial arrangement, as on the whole the most useful.

Subsection LAOMA, Gray, 1849.

Shell conical or trochiform, scarcely perforate, smooth, pellucid, shining; whorls flattened, the last carinated, base plane; aperture squarely depressed, lamellate, lip simple. H. LEIMONIAS, Gray. *New Zealand.*

Actinaria, Pfr., 1855, may be united with this, as a synonym.

Section LIBERA, Garrett, 1881.

Shell small, widely umbilicated, but the umbilicus (in adults) strongly constricted below, so as to form a pouch-like cavity within; whorls 7–9, costulate or striate, periphery usually angulated, rarely rounded; peristome simple; parietal region with one or two, and the palate with two or three internal laminæ, columella emarginate and furnished with a spiral fold. H. FRATERCULA, Pease. *Polynesia.*

These animals are remarkable for their habit of ovipositing

into the cavernous umbilicus of their shells; this umbilicus is constricted with the formation of the last two whorls, and the eggs and young are sometimes still more effectually retained by a temporary shelly plate which partially covers the opening.

Section TROCHOMORPHA, Albers, 1850.

Subperforated to umbilicated, trochiform, with more or less obtuse apex; whorls somewhat flattened, the last with a carinated periphery, and planulate base; aperture depressed, oblique, peristome simple.

A large group, the metropolis of which is central Polynesia, but some of the species are East Indian. *Trochomorphoides* and *Ganesella*, Nevill, are scarcely distinguishable.

*Liocystis*, Mörch, contains a species having a sigmoid columella. I have followed Pfeiffer in including it here.

Subsection NIGRITELLA, Albers, 1860.

Includes the typical forms of *Trochomorpha*, as distinguished from the following subsections.

Subsection VIDENA, H. and A. Adams, 1852.

Widely umbilicated, thin, discoidal, carinated at the periphery, flat or somewhat elevated above, flatly convex below; aperture widely subtriangular, the peristome simple, sharp or slightly thickened. Mostly Polynesian and Australasian. H. ACUTIMARGO, Pfr. *Philippines.*

Subsection THYSANOTA, Albers, 1860.

Narrowly umbilicated, trochiform, thin; whorls scarcely convex, base carinated, with rigid hairs; aperture angularly lunar, lip simple, acute, columellar margin slightly expanded. H. GUERINI, Pfr. *India.*

The New Zealand group *Thera*, Hutton, appears to be identical.

Subsection PARARHYTIDA, Ancey.

Narrowly umbilicated, conical-discoidal, obliquely plicately striate, thin, diaphanous, periphery acutely carinated. H. DICTYODES, Pfr. *New Caledonia.*

Subsection POECILOZONITES, Sandberger, 1884.

Narrowly umbilicated, conoidally lenticular, with acutely angulated periphery; aperture subtrapezoidal, lip simple, thickened within, columella short, vertical. H. BERMUDENSIS, Pfr. *Bermuda.*

Section MICROPHYSA, Albers, 1860.

Shell umbilicated, turbinately or globosely depressed, thin, striulate, scarcely shining, usually light yellowish; whorls 4–5, slightly convex, slowly increasing; aperture rounded-lunate, peristome thin, the margins converging. H. BOOTHIANA, Pfr. *West Indies.*

Subsection PELIA, Albers, 1860.

Shell imperforate, depressed, lenticular, thin, with concentric lines, acutely carinate; whorls 5, slightly convex, the last with convex base, impressed in the middle; aperture subrhombic, peristome simple, acute. H. SPIRULATA, Pfr. *Central America.*

Section PELLA, Albers, 1860.

Shell imperforate or perforate, depressed orbicular, thin, striate, or plicate-striate; whorls 5, slightly convex; aperture lunately rounded, peristome simple, acute; columellar lip subvertical, dilated above. H. BISCULPTA, Benson. *South Africa.*

*Phasis*, Albers, 1850, proposed for a single *Cape* species, may be added.

Group III. PATULA, Held, 1837.

Section DISCUS, Fitzinger, 1833.

H. ROTUNDATA, Müller. Pl. 3, figs. 72–76.

Perspectively umbilicated, depressed, yellowish corneous, maculated with chestnut, lightly costulate-striate, spire convex; whorls $6\frac{1}{2}$, planulate, the last obtusely subangulate on the periphery. Diam. 8 mill.

*Middle and Northern Europe.*

*H. radiata*, Da Costa, is a synonym.

Var. TURTONI, Fleming.

Spire much depressed, upper surface plane.

Var. ALBINA, Fér. Figs. 75, 76.

Shell whitish or greenish white, without rays. An albino.

Var. PALLIDA, Baudon.

Whitish, the yellowish flammules faint.

Var. SCALARIS, Fér.

Whorls exserted. A monstrosity.

Var. GLOBOSA, Fried.

H. PERSPECTIVA, Say. Pl. 3, figs. 77–79.

Widely, perspectively umbilicated, very slightly convex above, excavated below, thin, reddish corneous, regularly costulate; whorls $6\frac{1}{2}$, slightly convex, slowly increasing.

Diam. 8 mill.

*U. S. (Middle, Western and Southern States).*

North of Maryland it does not occur east of the Appalachian chain.

It is *Helix patula*, Desh.

H. RUDERATA, Studer. Pl. 3, figs. 80–84.

Perspectively umbilicated, depressed, yellowish corneous, finely costulate-striate, spire a little convex; whorls 4–5, the last with rounded periphery. Diam. 6–8 mill.

*Northern and Middle Europe, United States, Northern Asia.*

The synonyms are: *H. rotundata* β Nilss; *H. umbilicus*, Marklin; *H. striatella*, Anthony (figs. 82–84); *H. perspectiva*, Fér.

Var. ALBIDA, Westerl.

Shell greenish white. *Northern Sweden, Norway.*

Var. GORTSCHANA, Mousson.

A little more depressed, thin, costulæ not so close and less distinct.

*Russian Transcaucasia.*

Var. OPULENS, Westerlund.

Globosely convex, densely costulate, widely concavely umbilicated; whorls convex, the last obtusely angulated, suture deep. Diam. 7, alt. 5 mill.

*Behring's Island.*

H. PAUPER, Gould. Pl. 3, figs. 85, 86.

Discoidal, reddish brown, incremental striæ costulate; whorls $4\frac{1}{2}$, a little convex, with deep suture. Diam. 7·5 mill.

*Kamtschatka; Jesso, Japan.*

Umbilicus narrower than in *H. ruderata;* but certainly very

closely allied to that species. The earlier described *H. flocculus*, Morelet, is probably the young of this species.

H. Cronkheitei, Newcomb. Pl. 3, figs. 87, 88.

Subdepressed, a little convex above, costulate striate, yellowish corneous; whorls 4, suture wide and deep, almost channeled, umbilicus large, perspective. Diam. 5 mill.

*Oregon, Alaska.*

More elevated, striæ stronger, suture deeper than in *H. ruderata;* of which it is very probably a mere variety.

H. Hornii, Gabb. Pl. 3, figs. 89, 90.

Openly umbilicated, depressed, brownish, minutely obliquely striate, and (rarely) sparsely hairy; whorls $4\frac{1}{2}$, the spire whorls subplanulate, the last rapidly descending, suture deep; umbilicus about one-third the total diameter, indistinctly perspective.

Diam. 4 mill. *Arizona.*

According to Mr. Ancey this species occurs also in Honduras.

H. Frivaldskyana, Rossmassler. Pl. 3, figs. 91–93.

Perspectively umbilicated, lenticularly depressed, obtusely carinated, yellowish white, lightly costulate-striate; whorls 5, convex. Diam. 9 mill.

*Roumelia.*

Is *H. convexa*, Fér.

H. Abietana, Bourg. Pl. 4, figs. 45–47.

Widely umbilicated, somewhat solid, translucent, corneous, flamed with fulvous, strongly costulate; whorls 6, convex, slowly increasing, suture deep, last whorl with obtusely subangulated periphery, not descending in front. Diam. 5 mill.

*Algiers.*

H. Arrouxi, Bourguignat. Pl. 4, fig. 56–58.

Openly umbilicated, depressed, fragile, subpellucid, thinly striulate; fulvous chestnut, maculated with whitish, apex shining, blackish; whorls $5\frac{1}{2}$, a little convex, suture well impressed, last whorl obscurely subangulated, base convex.

Diam. 6 mill.

*Berytus, Syria.*

H. concinna, Lowe. Pl. 3, figs. 94–96.

Widely umbilicated, rather solid, scarcely shining, light greenish corneous, closely plicate-costulate above, suture mod-

erate; whorls 7½, very slowly increasing, a little convex, the last subcarinate above, not descending in front, base more convex, smoothish; aperture somewhat obliquely lunar, margins approaching. Diam. 8 mill.

*Hierro, Canary Is.*

H. HERMANNI, Pfr. Pl. 3, figs. 100, 1.

Widely umbilicated, discoidal, closely costulate above, a little shining, diaphanous, corneous; whorls 4½, a little convex, slowly increasing, the last narrow, more slightly costulate on the base; umbilicus conical; aperture subvertical, rounded-lunar, margins approaching. Diam. 2 mill.

*Mirador, State of Vera Cruz, Mexico.*

H. AMANCAENSIS, Hidalgo. Pl. 3, figs. 2, 3.

Widely, profoundly umbilicated, thin, very closely covered by hair-like costulations, brownish corneous, spire subplanate, suture profound; whorls 5, slowly increasing, convex, narrow, the last scarcely wider than the penultimate. Diam. 2·5 mill.

Near *Lima, Peru.*

H. HUMILIS, Hutton. Pl. 3, figs. 4–6.

Widely, profoundly umbilicated, striulate, diaphanous, a little shining, brownish corneous; whorls 5, rounded, periphery subangulated. Diam. 3·3 mill.

*Landour, Eastern India.*

H. COMA, Gray.

Widely umbilicated, rather thin, obliquely costulate, ribs distant, straight, about nine in the tenth of an inch; pale brown with bands of reddish brown, periphery rounded.

Diam. 5·5 mill.

*New Zealand.*

*H. tau*, Pfr., is a synonym. Unfigured: the *H. coma*, of Pfr., being a different species, referred to *H. lucetta*.

H. LUCETTA, Hutton. Pl. 3, figs. 7–9.

Ribs rather distant, about fifteen in the tenth of an inch, spire convex, more elevated than in the last species, periphery obscurely angled; pale brown obscurely spotted. Diam. 7 mill.

*New Zealand.*

*H. coma*, of Pfr., not Gray.

The animal is white, the peduncles purplish, and a band on each side of the head slightly speckled with purple.

H. VARICOSA, Pfr. Pl. 3, fig. 10.

Umbilicus moderate, spire slightly elevated, varicosely angulated by distant costæ, not shining, fuscous; whorls 4½–5, a little flattened, base somewhat flattened. Diam. 3·5 mill.

*New Zealand.*

H. GAMMA, Pfr. Pl. 3, fig. 11.

Rather widely umbilicated, somewhat thin, very closely costulate-striate (about 30 in the tenth of an inch), diaphanous; light corneous, nebulously marked with chestnut; whorls 5, a little convex, slowly increasing, the last more convex below. Diam. 3 mill.

*New Zealand.*

*H. buccinella*, Reeve, is a synonym.

H. ANGUICULUS, Reeve. Pl. 3, fig. 13.

Umbilicated, subdiscoidal, brownish with remote chestnut strigations, ribs about 33 in the tenth of an inch; whorls 5, rounded. Diam. 2·5 mill.

*New Zealand.*

Is *H. theta*, Pfr. MS.

H. TAPIRINA, Hutton.

Ribs about 18 in the tenth of an inch, horny brown, obscurely banded with chestnut. Diam. 5 mill.

*New Zealand.*

More closely ribbed than *H. coma*, with which Hutton at first identified it. Unfigured.

H. ZETA, Pfr. Pl. 3, fig. 14.

Widely umbilicated, subdiscoidal, somewhat solid, closely plicate, about 23 in the tenth of an inch, not shining, light yellowish, tessellated with large chestnut maculations, spire plane, subimmersed in the middle, suture profound; whorls 5½, very narrow, convex, the base more lightly plicate. Length, 3·6 mill.

*New Zealand.*

*H. infecta*, Reeve, is a synonym.

H. EGESTA, Gray. Pl. 3, fig. 15.

Widely umbilicated, rather solid, regularly spirally sulcate, with distant radiating ribs: reddish brown, sometimes mottled with yellowish; whorls 5½, convex, the last narrow, often a little depressed in front. Diam. 4·3 mill. *New Zealand.*

H. ETA, Pfr. Pl. 3, fig. 12.

Rather widely umbilicated, depressed, silky, yellowish white, ribs very close, about 40 in the tenth of an inch, suture impressed; whorls 4, barely convex, the last wider, depressed. Diam. 3 mill.

*New Zealand.*

*H. corniculum*, Reeve, is a synonym.

H. DIEMENENSIS, Cox. Pl. 3, figs. 16–18.

Widely umbilicated, thin, translucid, with a number of somewhat prominent subarcuate costulations, not shining, yellowish, radiately ornamented with chestnut strigations; whorls $4\frac{1}{2}$, slowly increasing, a little convex, the last rounded at the periphery. Diam. 9 mill.

*Tasmania.*

This has been suspected to be a variety of the New Zealand *H. coma*, Pfr. not Gray = *H. lucetta*, Hutton. Mr. Petterd reduces the following Tasmanian species to synonyms of this: *H. Thomsoni*, *H. Daveyensis*, *H. Atkinsoni*, *H. Camillæ*, and *H. Wellingtonensis*, Cox (figs. 17, 18).

H. CUPREA, Cox. Pl. 3, figs. 21, 22.

Widely umbilicated, discoidal, copper-colored, shining, suture wide; whorls $4\frac{1}{2}$–5, moderately increasing, the last with rounded periphery, closely, lightly striate above and below, a little deflected in front. Diam, 2·5 mill.

*King George's Sound, Australia.*

H. SATURNI, Cox. Pl. 3, fig. 23.

Widely, perspectively umbilicated, discoidal, subconcave above, everywhere costulate, reddish corneous, a little shining; whorls 5, convex, the last tumid, spire subimmersed, suture deep. Diam. 2·5 mill.

*Sydney, Australia.*

*H. costulata*, Cox, is a synonym.

H. BRAZIERI, Cox. Pl. 4, figs. 24, 25.

Umbilicus perspective, very wide, plano-discoidal, thin, lightly, very closely costulate, the interstices decussated by slight lines, ash-color, with chestnut lines and strigations, spire plane, suture deep; whorls 5, regularly increasing, the last rounded, costulate below as above. Diam. 3·3 mill.

*Cook's River, Sydney, Australia.*

H. LIRATA, Cox. Pl. 4, figs. 26, 27.

Widely, perspectively umbilicated, plano-discoidal, regularly strongly costate, chestnut corneous; whorls $3\frac{1}{2}$, the last rounded, spire subimmersed, suture profoundly impressed. Diam. 3 mill.

*Sydney, Australia.*

H. STROUDENSIS, Cox. Pl. 4, figs. 28, 29.

Widely umbilicated, discoidal, thinly costulately striate, convex, suture impressed, brownish; whorls 5, spire truncate. Diam. 3 mill. *Stroud, Port Stephens, Australia.*

H. PEXA, Cox. Pl. 4, figs. 30, 31.

Widely umbilicated, almost discoidal, thin, translucent, regularly, closely, arcuately costate, costæ appearing as though in pairs, light yellowish corneous, spire plane, suture moderate; whorls 4, convex, the last narrow, rounded. Diam. 2 mill.

*Greystanes, N. So. Wales.*

H. COCHLIDIUM, Cox. Pl 4, figs. 32, 33.

Umbilicus wide, scarcely narrower at the bottom, shell thin, translucent, dull vitreous, with numerous thin, elevated, curved riblets, the interstices lightly, very minutely granulate and lineate; white; whorls $4\frac{1}{2}$, convex, spire plane, last whorl narrow, rounded, a little inflated and plicate below. Diam. 2·25 mill.

*Clarence River, Australia.*

More strongly sculptured than *H. pexa*.

H. BELLI, Cox. Pl. 4, fig. 36.

Widely and perspectively umbilicated, discoidal, depressed and subconcave, regularly costellate, reddish chestnut color, a little shining; whorls 5, somewhat convex, the last tumid, suture deeply impressed. Diam. 1·75 mill.

*Sydney, Australia.*

H. COLLISI, Brazier. Pl. 5, figs. 79, 80.

Widely umbilicated, shining, yellowish corneous, lightly striate above, smooth below, suture strong impressed; whorls 5, regularly increasing, convex, narrow, the last a little descending, excavated around the umbilicus. Diam. 1·75 mill.

*Mt. Wellington, Tasmania.*

Described as *H. minima*, Cox, preoccupied by H. Adams for a Mauritian species.

H. DECRETA, Gassies. Pl. 4, figs. 34, 35.

Widely umbilicated, lenticular, lightly striate, light corneous unicolored under a yellowish brown epidermis, scarcely shining; whorls 5, convex, the last slightly descending, suture linear. Diam. 2 mill. *New Caledonia.*

H. SUBCOACTA, Gassies. Pl. 4, figs. 48, 49.

Widely umbilicated, striulate, reddish brown, epidermis somewhat wrinkled, hairy; whorls 5, regularly enlarging, the last scarcely descending, suture deep. Diam. 3 mill.

*Ins. Art, N. Caledonia.*

H. LAMBERTI, Gassies. Pl. 4, figs. 37, 38.

Very widely umbilicated, depressed, subplane above, thin, pellucid, shining corneous, suture deep, surface longitudinally and spirally striated; whorls 5, rapidly increasing, rounded, the last not descending in front, aperture brownish. Diam. 8 mill.

Near *Noumea, N. Caledonia.*

H. INCULTA, Gassies. Pl. 4, fig. 51.

Umbilicated, lenticular, subcarinate, a little convex, thin, transversely flexuosely strigate, obscurely olivaceous under the epidermis; whorls $3\frac{1}{2}$–$4\frac{1}{2}$, rapidly increasing, the last descending, depressed above the middle, convex at base; margins of peristome joined by a thin parietal callus. Diam. 6 mill.

*New Caledonia.*

H. RUSTICULA, Gassies. Pl. 16, figs. 71, 72.

Widely, deeply umbilicated, strongly, obliquely, lamellarly striated, reddish corneous or dark reddish; whorls 6, the last depressed, the suture deep, carinated. Diam. 8 mill.

*Isle of Pines, New Caledonia.*

H. MELALEUCARUM, Gassies. Pl. 4, fig. 50.

Narrowly umbilicated, convex, flexuosely striated, dirty chestnut-color, apex yellowish, spire turbinate, suture profound; whorls 4, convex, regularly increasing, the last descending, periphery subcarinated, base flattened. Diam. 6·25 mill.

*New Caledonia.*

H. DEMANI, Tapparone-Canefri. Pl. 4, figs. 39–41.

Widely umbilicated, subobliquely closely costulate, corneous, subpellucid, spire almost immersed; whorls 4, regularly enlarg-

ing, with very deep suture, last whorl not descending in front, periphery very obtusely subangulated. Diam. 1·25 mill.

*Ins. Aru, New Guinea.*

H. CALDWELLI, Barclay. Pl. 4, figs. 42–44.

Widely umbilicated, thin, arcuately costulate, fulvous corneous, waxy; whorls $5\frac{1}{2}$, with deep suture, the last depressed, base convex; columella sinuous. Diam. 9 mill.

*Mauritius.*

This is mentioned in Vol. ii, 27, as an unfigured species of *Erepta*. I now supply a figure of *H. Paulus*, Morelet, which proves to be synonymous. It is a true Patula.

H. PRINCEI, Liardet. Pl. 5, fig. 83 *a*.

Widely, perspectively umbilicated, dark horn-color, lighter below; whorls 3, costulate, suture deeply impressed; aperture round. Diam. 3–4 mill.

*Taviunni, Viti Is.*

"This is the only Vitian shell I have seen resembling any of the Australian Helices."—LIARDET.

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*Unfigured and Undetermined Species.*

H. CARPETANA, Hidalgo. Near *San Ildefonso, Spain.*

H. OMALISINA, Bourg. *France.*

H. TENUISTRIATA, Binney. *Tennessee.*

This species has never been identified.

H. LEPTA, Westerlund. *Nangasaki, Japan.*

H. REINIANA, Pfr. *Bermuda.*

H. SQUARROSA, Gould. *Japan.*

H. SCUTULATA, Shuttl. *Teneriffe.*

H. GARACHICOENSIS, Wollaston. *Madeira.*

H. BIANCA, H. TIMANDRA, H. JESSICA, H. SYLVIA, Hutton. *New Zealand.*

H. BARRENENSIS, H. MIMOSA, Petterd. *Tasmania.*

H. SUBRUGOSA, Brazier. *Hobart Town, Tasmania.*

H. SPALDINGI, and Var. CARINATA, Brazier. *N. Australia.*

H. FORNICATA, Gould. *Sandwich Islands.*

In the Corrigenda to the Mollusca of the Wilkes Exploring Expedition, Dr. Gould states that the only specimen was lost, and *H. Tongana*, Quoy, figured by the artist for this species.

H. NEWTONI, Nevill. *Mauritius.*

Subsection PLANOGYRA, Morse, 1864.

H. ASTERISCUS, Morse. Pl. 4, fig. 52.

Orbicular, somewhat depressed, brownish; whorls 4, well-rounded, crossed by 25–30 thin, transparent, prominent, reclined ribs, the interstices lightly striate, spire not elevated, suture deep; umbilicus moderate, showing all the whorls.

Diam. 1·5 mill.

*State of Maine; N. of Lake Superior; Tacoma, Washington Terr.*

Subsection PUNCTUM, Morse, 1864.

I. *European Species.*

It is very doubtful whether this group should be separated at all from Discus. Certain of the species possess a distinctive character in the jaw, but this organ has not been examined in many of the forms included by Pfeiffer in his undescribed section Patulastra, which is, at least typically, the equivalent of Punctum. I have retained the species as assigned to the group by Pfeiffer, but many of them are certainly typical Discus, and conchologically there is no gap between the groups.

H. MICROPLEUROS, Paget. Pl. 6, figs 19–21.

Minute, openly umbilicated, somewhat flattened above, convex below, shining, subpellucid, corneous or amber-colored, costate; whorls 4, a little convex, with impressed suture, last whorl dilated. Diam. 2 mill.

*Southern France; Sardinia.*

*H. tenuicostata*, Shuttleworth, 1848 (= *H. Shuttleworthi*, Servain), from the last named country, is a synonym.

H. ELACHIA, Bourguignat. Pl. 6, figs. 22–24.

Very minute, umbilicated, planate above, convex below, pellucid, hyaline, light corneous, elegantly costate; whorls $3\frac{1}{2}$, rapidly increasing, with impressed suture, last whorl slightly descending in front, periphery subangulated, obscurely subcarinated around the umbilicus. Diam. 1·5 mill.

*Angers, France.*

H. DEBEAUXIANA, Bourg. Pl. 6, figs. 31–33.

Narrowly, deeply umbilicated, subpellucid, a little shining, corneous, with whitish flammules on the earlier whorls, sharply

striulate; whorls 4, a little convex, regularly and rapidly increasing. Diam. 2 mill.

*Algiers.*

H. POUPILLIERI, Bourg. Pl. 6, figs. 40–42.

Deeply umbilicated, shining, subpellucid, corneous, becoming orange-brown in the last whorl, elegantly obliquely lamellarly costate; whorls 4–5, convex, rapidly increasing, with well impressed suture, last whorl a little deflected downwards, rounded. Diam. 2 mill.

*Algiers.*

H. PYGMÆA, Draparnaud. Pl. 6, figs. 28–30.

Very minute, openly umbilicated, brownish corneous, slightly shining, minutely striulate; whorls $3\frac{1}{2}$–4, regularly slowly increasing, with well impressed suture, periphery rounded; aperture widely lunar. Diam. 1·75–2 mill.

*Europe, United States.*

The synonyms of this well-known species are *H. minuta*, Studer; *H. Kirbii*, Shepp.; *H. Taranti*, Benzo; *? H. Deshayesii*, Calcara (*Sicily;* perhaps a juvenile), and *H. minutissima*, Lea, the type of Morse's genus Punctum, inhabiting the northern portion of the United States.

H. AUCAPITAINEANA, Bourg. Pl. 6, figs. 34–36.

Small, perviously umbilicated, corneous, translucent, obliquely striulate, particularly above; whorls $4\frac{1}{2}$–5, scarcely convex above, rapidly enlarging, with well-impressed suture, the last whorl dilated, obsoletely angulated on the periphery, very slightly descending at the aperture. Diam. 2 mill.

*Algiers.*

H. SORORCULA, Benoit. Pl. 6, figs. 46, 47.

Umbilicated, whitish fulvous, closely costulate, opaque; whorls 4, slightly convex, the last a little descending in front, not dilated; aperture a little oblique, the margins approaching. Diam. 3·5 mill.

*Sicily.*

H. MASSOTI, Bourg. Pl. 6, figs. 25–27.

Widely umbilicated, almost flattened above, subpellucid, slightly shining, light corneous, smooth, scarcely striulate; whorls $4\frac{1}{2}$, convex, slowly regularly enlarging, with channeled suture, the last slightly descending in front. Diam. 1·5 mill.

*Roussillon and Catalonia.*

H. Schwerzenbachii, Calcara. Pl. 6, figs. 43–45.

Minute orbicular, thin, pellucid, glabrous, horny fulvous, widely umbilicated; whorls 3, convex, the last large, inflated. Diam. 0·66 mill.

*Sicily.*

Probably a juvenile.

H. Sudensis, Pfr. Pl. 6, figs. 37–39.

Perspectively umbilicated, yellowish corneous, with thread-like costulations; whorls 6, narrow, the last not descending, suture deep; peristome flexuously repand, columellar margin subpatulous. Diam. 7·5 mill.

*Candia.*

H. Balmei, Potiez et Michaud. Pl. 6, figs. 48–50.

Openly umbilicated, elegantly costate-striate, brownish yellow; whorls 6, convex, slowly enlarging, aperture subvertical, lunar. Diam. 10 mill.

*Sicily.*

This is *H. flavescens*, Parr., *H. striolata*, Phil., *H. Teresæ*, Benoit, and *H. flavida*, Ziegler. The Marchioness Paulucci has recently examined the type of this species and finds it to be a true species equaling and anterior in publication to *H. flavida*, Ziegler, but the shell which Pfeiffer and other authors have called *H. Balmei*, and which Shuttleworth has figured under that name in his "Notitiæ," is a Hyalina, and can stand as *Hyalina Balmei*, Shuttlew.

H. Erdelii, Roth. Pl. 6, figs. 51, 52.

Narrowly umbilicated, rather thin, closely costulate, diaphanous, yellowish corneous, paler below; whorls $5\frac{1}{2}$, convex, slowly increasing, the last not descending, periphery rounded. Diam. 9 mill.

*Isle of Rhodes.*

H. Hauffeni, F. Schmidt. Pl. 22, figs. 15, 16.

Rather widely umbilicated, elegantly costulate, subdiaphanous, yellowish white; whorls $4\frac{1}{2}$–5, convex, the last narrow, not descending. Diam. 3·25 mill.

*Caverns in Corniola.*

This has been made the type of a new subgenus *Spelæodiscus*, Brusina; the animal is entirely blind, the visual organs absent.

*Unfigured Species.*

| | |
|---|---|
| H. ARANEA, Parreyss. | *Sicily.* |
| H. SIMONIANA, Bourg. | *So. France.* |
| H LEDERI, Böttger. | *Transcaucasia.* |
| H. BALATONICA, Servain. | *Lake Balaton, Hungary.* |
| H. LETESSIERIANA, Bourg. | *Algeria.* |
| H. CAROTÆ, Bourg. | *Tuscany.* |
| H. PRONOE, Servain. | *Tuscany.* |
| H. SERVAINI, Bourg. | *France.* |
| H. NEMESIANA, Bourg. | *Maritime Alps.* |

II. *Atlantic Species.*

H PUTRESCENS, Lowe. Pl. 6, figs. 53–55.

Perspectively umbilicated, rather thin, obliquely striulate, shining, dark brown; whorls $5\frac{1}{2}$–6, a little convex.

Diam. 9–9·5 mill.

*Ins. Palma.*

Probably belongs in Discus.

H. PUSILLA, Lowe. Pl. 6, figs. 56–58, 64–68.

Narrowly umbilicated, thin, brownish, distantly, membranously costate above, suture distinctly impressed; whorls $3\frac{1}{2}$, a little convex, last whorl not descending, base smooth; aperture subcircular. Diam. 2 mill.

*Madeira, Teneriffe, etc.*

*H. hypocrita*, Dohrn, and *H. servilis*, Shuttl. (figs. 64–66), are synonyms..

H. LUSEANA, Paiva. Pl. 6, figs. 59, 60.

Moderately umbilicated, thin, pellucid, shining, pale olivaceous yellow, with regular incurved radiating striæ; whorls 4–$4\frac{1}{2}$, tumid, gradately increasing, the last not carinate, not deflected anteriorly, periphery obsoletely angulated. Diam. 2·5 mill.

*Madeira.*

Has been considered a variety of *H. pusilla*, Lowe; differs in the umbilicus.

H. TEXTILIS, Shuttleworth. Pl. 6, figs. 61–63.

Moderately perspectively umbilicated, rather solid, obliquely closely costulate; yellowish corneous, here and there maculated with brown, suture deep; whorls 7, convex, slowly enlarging,

the last not descending, periphery rounded, base more flattened, lightly striate; margins of aperture approaching.

Diam. 8 mill.

*Ins. Palma.*

Probably a true Discus.

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H. PARVULA, Rang (unfigured). *Cape Verd.*

III. *East African Species.*

H. CRYOPHILA, Martens. Pl. 7, figs. 67–70.

Openly umbilicated, distinctly, subdistantly costulate above, lightly striate below, corneous, diaphanous, shining; whorls $3\frac{1}{2}$, convex, the last one slightly deflected in front; aperture diagonal, subcircular. Diam. 2 mill.

*Abyssinia.*

H. ABYSSINICA, Jickeli. Pl. 7, figs. 71–74.

Perviously umbilicated, somewhat solid, opaque, brownish, obliquely, strongly, closely costulate-striate; whorls 4, a little convex, slowly and regularly enlarging, suture rather deep, last whorl narrow, not deflected in front; aperture oblique, widely lunar. Length, 2·5 mill.

*Abyssinia.*

First described by Martens as *H. rivularis*, a name preoccupied by Krauss.

IV. *Asiatic Species.*

H. EUOMPHALUS, Blanford. Pl. 7, figs. 75–77.

Moderately umbilicated, fulvous corneous, thin, obliquely striate, suture impressed; whorls 4, rounded, the last somewhat narrow, scarcely descending; margins of periphery distant.

Diam. 2 mill.

*Nilgiri Mts., India.*

H. BIANCONII, Deshayes. Pl. 7, figs. 78, 79.

Widely umbilicated, thin, pellucid, fuscous corneous; whorls 5, narrow, convex, with deep linear suture, regularly thinly striated, last whorl double width, below less strongly striate; extremities of peristome distant. Diam. 5 mill.

*Sytshuan, China.*

Should be placed in Discus, perhaps.

H. Neherensis, Benson. Pl. 7, figs. 80, 81.

Narrowly, perspectively umbilicated, obliquely striulate, decussated above and below by very close scarcely impressed concentric lines, suture subchanneled; whorls 5, a little convex, the last rounded at the periphery, convex below, excavated around the umbilicus; margins of peristome joined by a thin, minutely granulated callus. Diam. 5 mill.

*Mahabaleshwar, Western India.*

The figures, which are copied from Conch. Indica, appear to represent a Hyalina rather than a Patula. Perhaps the striæ are not sufficiently indicated.

H. artificiosa, Benson. Pl. 7, fig. 82.

Narrowly umbilicated, a little shining, above with close revolving liræ and sulcations, decussated by oblique costulations, below with remoter liræ and radiating striæ, light corneous, suture deep; whorls $6\frac{1}{2}$, a little convex, slowly increasing, the last subangulate above, convex below; peristome slightly sinuated, right margin crenulate. Diam. 14 mill.

*Tenasserim, Burmah.*

Does not belong in this group.

H. fritillata, Benson. Pl. 22, figs. 17–19.

Perspectively umbilicated, arcuately costulate-striate, decussated by impressed close spiral striæ above, the interstices conspicuously quadrately granular, smoother and polished below, light corneous, suture profound; whorls 6, narrow, slowly enlarging, convex, the last scarcely descending anteriorly, more convex below, and excavated around the umbilicus; peristome externally margined below, extremities remote. Diam. 13 mill.

*Pegu.*

H quadrispira, Martens. Pl. 7, figs. 83–85.

Widely perspectively umbilicated, subangulate, closely somewhat obliquely costulate, grayish white, a little shining; whorls 4, slightly convex; rapidly increasing, with deep suture, last whorl subangulated, descending in front, more convex below; margins of peristome approaching. Diam. 5·5 mill.

*Ceram, Moluccas.*

Probably a Discus.

---

H. Nagporensis, Pfr. (unfigured). *Nagpore, India.*

V. *Australasian Species.*

H. Morti, Cox. Pl. 7, figs. 87, 88.

Widely, profoundly umbilicated, brownish, rugosely costate, the interstices very minutely, lightly, decussately striate-punctulate, somewhat solid; whorls 5, a little convex, the last rounded. Diam. 2 mill.

*Sydney, Australia.*

*H. paradoxa*, Cox, is a synonym. This and several following species belong to Discus.

H. Hobarti, Cox. Pl. 7, figs. 89, 90.

Openly, deeply umbilicated, dark brown, closely regularly costate; whorls $4\frac{1}{2}$, rounded, base convex; aperture almost circular, the margins approximating, the columellar not everted. Diam. 12 mill.

*Hobart, Tasmania.*

Allied to the preceding species.

H. Tasmaniæ, Cox. Pl. 7, figs. 91, 92.

Largely deeply umbilicated, thin, regularly, strongly costate, alternately dark chestnut and pallid; whorls 5, planulate towards the suture, the last slightly descending in front, base convex; margins of aperture somewhat approaching, the columellar margin not dilated. Diam. 3 mill.

*Mt. Wellington, Tasmania.*

H. stellata, Brazier. Pl. 7, figs, 93, 94.

Deeply, perspectively umbilicated, chestnut-colored, not shining, everywhere regularly, lightly costate, suture narrow and deep; whorls $4\frac{1}{2}$, rounded, the last slightly descending in front. Diam. 2 mill.

*Mt. Wellington, Tasmania.*

*H. similis*, Cox (not Adams), is a synonym.

H. retipora, Cox. Pl. 7, figs. 95, 96.

Perforate, closely costulately striate, decussated by very minute concentric lines, rather solid, somewhat shining, reddish corneous, lighter colored below, suture moderately impressed; whorls 4, plano-convex, the last not descending, convex below; aperture oblique, almost rounded-lunate. Diam. 5 mill.

*Flinder's Range, Australia.*

H. MELBOURNENSIS, Cox. Pl. 7, figs. 97–99.

Shell subumbilicated, regularly lightly striate, converging towards the umbilicus; fuscous, paler below, suture impressed; whorls $4\frac{1}{2}$, rounded; aperture lunately rounded, margins of peristome converging, columellar lip widely reflected.

Diam. 5 mill.

*Melbourne, Victoria, Australia.*

H. VORTICELLA, H. Adams. Pl. 7, figs. 100, 1.

Openly perspectively umbilicated, thin, obliquely very closely costulate-striate, fulvous, suture distinct; whorls $4\frac{1}{2}$, convex, the last not descending, subdepressed above; margins of aperture approaching, right margin subsinuated. Diam. 2·25 mill.

*Mauritius.*

H. TEXTRIX, Pfr. Pl. 7, figs. 2–4.

Conically umbilicated, thin, striulate and rather distantly arcuately plicate, diaphanous, scarcely shining, light corneous, with angular chestnut lines; whorls 5, a little flattened, the last depressed, periphery subangulate, not descending anteriorly, base more convex. Diam. 8 mill.

*Lord Howe's Island, New Hebrides.*

H. AULOCOSPIRA, Pfr. Pl. 7, fig. 86.

Widely umbilicated, thin, irregularly lightly malleate, regularly sulcated by impressed concentric lines, yellowish corneous; whorls $4\frac{1}{2}$, depressed, rapidly increasing, the last not descending.

Diam. 12 mill.

*New Hebrides.*

Not a member of this group.

H. CONFINIS, Gassies. Pl. 7, figs. 7, 8.

Umbilicus moderate, shell obliquely lamelliformly striate, ferruginous chestnut-color, suture impressed; whorls 4, gradately enlarging, the last subdilated, base scarcely convex.

Diam. 2 mill.

*New Caledonia.*

H. SUBTERSA, Gassies. Pl. 7, figs. 5, 6.

Rather narrowly, deeply umbilicated, lamelliformly striated, brownish, suture impressed; whorls $4\frac{1}{2}$, the last descending.

Diam. 2 mill.

*Noumea, Lifou, New Caledonia.*

H. CALLIOPE, Crosse. Pl. 7, figs. 9, 10.

Rather widely umbilicated, thin, with subflexuous, minute, rather distant costulations, yellowish white with longitudinal markings of dark brown, suture impressed; whorls 5, rather flattened, the last not descending, depressed, the base subplanulate. Diam. 6·5 mill.

*New Caledonia.*

H. VETULA, Gassies. Pl. 7, figs. 11, 12.

Rather widely umbilicated, rather thin, very closely costulate-plicate above, radiately striate below, brownish corneous, suture deep; whorls almost 6, convex, slowly increasing, the last scarcely wider, not descending; margins of aperture remote. Diam. 4 mill.

*New Caledonia.*

H. RHIZOPHORARUM, Gassies. Pl. 7, figs. 16, 17.

Rather widely umbilicated, thin, regularly strongly striated, light corneous; whorls 6, constricted, regularly increasing, the last not descending, rounded below. Diam. 5 mill.

*New Caledonia.*

More elevated and less strongly striate than *H. vetula;* differing also in color and caducous epidermis. This, and other New Caledonian species, would be more appropriately placed in Discus.

H. TASLEI, Crosse. Pl. 7, figs. 13–15.

Widely umbilicated, somewhat thin, subtranslucent, a little shining, with light, arcuate, rather distant plications, light fulvous corneous, suture impressed; whorls 4, rather flattened, base planate; aperture similarly colored, margins joined by a very thin callus. Diam. 3·5 mill.

Near *Noumea*, *New Caledonia.*

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*Unfigured Species.*

H. LANGLEYANA, H. PETTERDI, H. ARCHITECTONICA, H. ASSIMILIS, H. LUCKMANII, H. CURACOÆ, all of Brazier. *Tasmania.*

H. MATHIUNÆ, Petterd. *Tasmania.*

H. STANLEYENSIS, Petterd (*H. Petterdiana*, Taylor, not Brazier). *Tasmania.*

H. FERNSHAWENSIS, Petterd. *Tasmania.*

H. IGNAVA, Pfr. *New Hebrides.*

(Carthæa, Hutton )

H. Kivi, Gray. Pl. 21, figs. 8–10.

Imperforate, white, radiately tessellate with purple-chestnut above, obliquely closely striate; whorls 6, somewhat flattened, the last subangulated, base convex, smoothish. Diam. 10 mill.

*New Zealand.*

*H. irradiata*, Gould (figs. 9, 10), is a synonym.

(Phrixgnathus, Hutton.)

H. Mariæ, Gray. Pl. 21, fig. 11.

Imperforate, rather thin, striulate, oily-shining, greenish corneous, with obscure narrow brownish strigations, suture margined; whorls $5\frac{1}{2}$, somewhat flattened, acutely carinated, base convex. Diam. 6·5 mill.

*New Zealand.*

*H. umbraculum*, Pfr., is a synonym.

H. regularis, Pfr. Pl. 21, fig. 12.

Subcovered perforate, thin, very minutely striate, pellucid, oily-shining, yellowish corneous, suture scarcely impressed; whorls 6, subplane, slowly increasing, the last not descending, acutely carinated, base somewhat flattened. Diam. 3 mill.

*New Zealand.*

H. Erigone, Gray. Pl. 21, fig. 13.

Perforate, thin, smooth, pellucid, fulvous, obsoletely red flamed, suture impressed; whorls 6–7, slightly convex, the last carinate, not descending, base scarcely more convex.

Diam. 2·5 mill. *New Zealand.*

*H. Heldiana*, Pfr., is a synonym.

H. glabriuscula, Pfr. Pl. 21, fig. 14.

Perforate, thin, smooth, pellucid, shining, yellowish, angulately lineated with chestnut; whorls $5\frac{1}{2}$, slightly convex, the last not descending, base a little flattened. Diam. 3·5 mill.

——— *New Zealand.*

*Unfigured Species.*

H. Ariel, H. marginata, H. celia (*H. fatua* of Hutton, not Pfeiffer), H. phrynia, H. titania, H. Haasti, all of Hutton.

*New Zealand.*

Hutton adds H. conella, Pfr.; H. sciadium, Pfr., and H.

FATUA, Pfr. The latter I have included in Conulus. These are all *New Zealand* species.

### VI. *Polynesian Species.*

H. RADIELLA, Pfr. Pl. 8, fig. 18.

Moderately umbilicated, thin, everywhere closely costulate, corneous, with undulating radiating chestnut strigations, broader at the periphery; whorls $5\frac{1}{2}$, a little convex, the last subangulated; the base a little flattened. Diam. 4·75 mill.

*Ins. Opara.*

*H. pardalina*, Desh., and *H. undulata*, Fér., are synonyms.

H. FILIOLA, Fér. Pl. 8, figs. 19–21.

Very widely umbilicated, radiately striate-plicate, reddish chestnut; whorls convex, narrow, striæ furcate at the umbilicus. Diam. 9 mill.

*Ins. Tonga.*

H. GRADATA, Gould. Pl. 8, figs. 22–24.

Planorboid, umbilicated, thin, shining, brownish-green, variegated radiately with yellow; whorls 5, closely obliquely striated, decussated by interrupted spiral striæ, last whorl subangulated, deflected towards the aperture, suture channeled, base angulated at the umbilicus. Diam. 5 mill.

*Ins. Tongataboo.*

H. TIARA, Mighels. Pl. 8, figs. 25–27.

Widely conically umbilicated, rather thin, arcuately striated above, a little shining, yellowish, with lightning-like chestnut strigations; whorls 6, a little convex, slowly increasing, the last rather narrow, not descending, base scarcely striate; aperture subopaline, peristome margins approximating. Diam. 12 mill.

*Ins. Kauai, Sandwich Is.*

H. MODICELLA, Fér. Pl. 8, figs. 28–32.

Widely umbilicated, rather thin, closely costulate, yellowish, strigated tessellately with chestnut; whorls 5, convex, periphery rounded, suture well impressed; aperture obliquely subcircular. Diam. 3 mill.

*Tahiti, Kermandec, Ellice Is.*

The synonyms are *H. Atiensis*, Pease, and *H. vicaria*, Mousson (figs. 31, 32).

Var. VICINALIS, Mousson.

Whorls more rounded, costulate but thin ; whitish with maculations and flames of chestnut.

H. LAMELLICOSTA, Garrett. Pl. 8, figs. 33, 34.

Widely umbilicated, orbicular, thin, subpellucid, brown or fulvous brown, unicolored or tessellated with deeper brown, radiately, rather distantly, lamelliformly costate, suture deeply impressed; whorls 4, convex, slowly and regularly increasing, the last not descending in front, periphery rounded.

Diam. 3 mill.

*Society Islands.*

H. TENUICOSTATA, Garrett. Pl. 8, figs. 35–37.

Perspectively umbilicated, thin, pellucid, a little shining, light corneous, not variegated, laminately costate, the ribs thin, rather close, oblique, slightly sinuous, continued on the base, interstices lightly, closely striate, suture deep; whorls 4, plano-convex, rapidly enlarging, base convex. Diam. 4·5 mill.

*Rarotonga, Cook's Is.*

H. CANALIS, Garrett. Pl. 8, figs. 38–40.

Widely, perspectively umbilicated, thin, subpellucid, slightly shining, brownish corneous, with darker strigations, closely, obliquely, sinuously costate, suture deeply channeled ; whorls 5, somewhat convex, the last a little deflected anteriorly, base rounded. Diam. 6 mill.

*Rarotonga, Cook's Is.*

H. PROXIMA, Garrett. Pl. 8, figs. 41–43.

Deeply moderately umbilicated, thin, subpellucid, closely, sinuously, obliquely, rudely striated, yellowish corneous (rarely ashy), with widely luniform chestnut tessellations above and radiating striæ below, suture deep; whorls $4\frac{1}{2}$, convex, rather rapidly increasing, the last a little planulate and declining above, base convex; peristome sinuous, upper margin receding.

Diam. 3·5 mill.

*Rarotonga, Cook's Is.*

H. RUDIS, Garrett. Pl. 8, figs. 44–46.

Moderately, deeply umbilicated; thin, subpellucid, lightly laminately costate, costæ rude, sinuous, more or less irregular, or partially deficient, the interstices very lightly finely striated corneous, occasionally brownish or blackish brown, with or

without chestnut radiations, suture channeled; whorls $4\frac{1}{2}$, a little convex, rather rapidly increasing, the last a little deflected in front, base convex. Diam. $3\frac{1}{2}$ mill.

*Rarotonga, Cook's Is.*

H. DECORTICATA, Garrett. Pl. 8, figs. 47–50.

Moderately, deeply umbilicated, thin, subpellucid, ash-colored under a brownish corneous epidermis, decorticated in adults, rarely strigated with chestnut, arcuately costate, the interstices very lightly striated, suture channeled; whorls 5, convex, slowly increasing, the last deflected above, rounded below, periphery obsoletely angulated. Diam. 4 mill.

*Rarotonga, Cook's Is.*

*H. Otareæ*, Garrett (fig. 50), is a synonym. It is smaller than *H. canalis*, umbilicus less open, ribs larger, rougher and more distant; sutural line also less profound, and color different.

H. HARVEYENSIS, Garrett. Pl. 8, figs. 51–53.

Moderately, deeply umbilicated, thin, subpellucid, greenish ash color, arcuately tessellated with chestnut, densely finely plicate-striate, striæ oblique, sinuous, less distinct on the base, suture channeled; whorls 5, slowly increasing, the last obtusely angulated, deflected above, convex below. Diam. 4·5 mill.

*Rarotonga, Cook's Is.*

In shape and markings it is very closely allied to *H. complementaria*, a Samoa species, but quite different in the style of sculpture.

H. YOUNGI, Garrett. Pl. 8, figs. 54–56.

Widely, perspectively umbilicated, thin, shining, subpellucid, uniform dark brown, closely, obliquely, arcuately, plicately striate, more slightly below, suture channeled; whorls $4\frac{1}{2}$, convex, rapidly increasing, the last deflected above, convex below. Diam. 4 mill.

*Rarotonga, Cook's Is.*

H. COMPLEMENTARIA, Mousson. Pl. 8, fig. 57.

Rather narrowly umbilicated, rugose, striate-costulate, with curved-back radiations of white and grayish corneous, suture subimpressed; whorls 5, slowly increasing, the last not descend-

ing, oblique, obtusely subangulated, flatly rounded below; right margin of peristome subincurved. Diam. 5 mill.

*Ins. Upolu.*

H. ADPOSITA, Mousson. Pl. 8, figs. 58, 59.

Narrowly umbilicated, thinly, unequally, but acutely obliquely plicate-striate, corneous, suture impressed; whorls $4\frac{1}{2}$, moderately increasing, somewhat convex, slightly, narrowly tumid above, the last a little larger, not descending, a little flattened. Diam. 3·5 mill.

*Oneata, Viti Is.*

H. INERMIS, Mousson. Pl. 8, figs. 60, 61.

Moderately umbilicated, equally, thinly, striate-costulate, chestnut corneous; whorls 4, moderately increasing, slightly convex, the last not descending, a little flattened in the middle. Diam. 2·6 mill.

*Lomma-Lomma* and *Vanua-Balavo, Viti Is.*

H. OUALANENSIS, Pease. Pl. 8, figs. 62–64.

Widely umbilicated, thin, translucent, flat above, periphery rounded; whorls 3–4, rapidly increasing, with subrugose, thin, radiating striæ, lightly concentrically striated, the last with rounded base; ashy yellow, with angulated and flexuous, oblique chestnut strigations and lines. Diam. 5 mill. *Oualan Isl.*

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*Unfigured Species.*

H. PLANOSPIRA, Garrett. *Rarotonga, Cook's Is.*

H. MINUTALIS, Fér. *Tahiti?*

VII. *West Indian and South American Species.*

H. INAGUENSIS, Weinland. Pl. 8, figs. 67, 68.

Rather narrowly umbilicated, thin, whitish (dead?), irregularly striulate; whorls $4\frac{1}{2}$, planulate, slowly increasing, the last not descending, base convex. Diam. 3·5 mill.

*Little Inagua.*

H. COSTELLATA, d'Orbigny. Pl. 8, fig. 69.

Widely umbilicated, thin, not shining, with very close, thin, equal, subdistant costulations, brownish, suture rather deep; whorls 5, convex, regularly increasing, the last a little wider than the penultimate, rounded, not descending in front. Diam. 4 mill. *Paraguay.*

H. LIRATA, Couthouy. Pl. 9, figs. 72–74.

Umbilicated, brownish corneous; whorls 4, closely lirate, suture subchanneled. Diam. 5 mill.

*Tierra del Fuego.*

H. COPPINGERI, Smith. Pl. 8, figs. 70, 71.

Rather narrowly umbilicated, closely costate, the interstices with microscopical spiral lines, pale luteous, suture deep; whorls $3\frac{1}{2}$, slowly enlarging. Diam. 1·6 mill.

*Patagonia.*

H. MAGELLANICA, Smith. Pl. 9, figs. 75–77.

Umbilicus wider than in the preceding species, body-whorl narrower beneath, but broader above; whorls only $2\frac{1}{2}$, more rapidly increasing, the riblets finer, more slender and numerous, no spiral sculpture. Diam. 1·6 mill.

*Patagonia.*

H. EXCISA, Pfr. Pl. 9, fig. 78.

Widely umbilicated, rather thin, closely arcuately costulated, diaphanous, light yellowish, suture impressed; whorls 4, a little convex, slowly enlarging, the last not descending, subdepressed, base narrower; aperture small. Diam. 4·5 mill.

*Santa Ana, New Granada.*

H. BRYOPHILA, Phil. Pl. 9, figs. 79, 80.

Widely, deeply umbilicated, thin, shining, with close, elevated, thin, radiating striæ; light corneous, suture deep; whorls $4\frac{1}{2}$, convex, slowly increasing, the last a little wider than the penultimate. Diam. 2·5 mill.

*Chili.*

H. CHILIENSIS, Mühlfeldt. Pl. 9, figs. 81–83.

Moderately umbilicated, thin, pellucid, brownish corneous, slightly rugose and very minutely granulated; whorls 4, convex; aperture subcircular. Diam. 4·5 mill.

*Chili.*

H. EPIDERMIA, Anton. Pl. 9, figs. 84–86.

Widely, deeply umbilicated, brownish, obliquely longitudinally costulate; whorls 5, moderately increasing, a little convex. Diam. 5 mill.

*Valparaiso, Chili.*

According to Deshayes the costulations are submembranaceous and the interstices are thinly striated.

This species is very closely related to *H. costellata*, d'Orb., and may be the same.

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*Unfigured Species.*

H. Batesi, Pfr. *Upper Amazon.*

H. Holmbergii, Döhring. *Argentine Republic.*

H. Stelzneriana, H. Strobeliana, H. Germaini, H. Jungermanniarum, H. Pazii (*H. Minviellei*, Phil., named in error for Dr. Paz Membiela, not Minvielle), H. corticaria, H. muscicola, H exigua, H. hypophlœa, H. Coiquecana, all of Philippi. *Chili.*

Subsection Goniodiscus, Fitzinger, 1833.

H. Bryanti, Harper. Pl. 4, figs. 69, 70.

Widely umbilicated, discoidal, nearly flat above, excavated below; whorls 5, gradually increasing, regularly ribbed, outer whorl bicarinate, surface between the carinæ striate, base ribbed as above; color light brown, translucent. Diam. 6·5 mill.

*Black Mts., N. Carolina.*

Is related to *H. perspectiva* in somewhat same fashion as *H. Cumberlandiana* is to *H. alternata.*

H. solaria, Menke. Pl. 4, figs. 53–55.

Very widely umbilicated, lenticular, flattened above, excavated below, thin, costulately striate; corneous maculated with chestnut; periphery acutely carinated; whorls $6\frac{1}{2}$, slowly increasing. Diam. 7 mill.

*Carinthia, Austria, Northern Italy, St. Jean de Luz.*

It is *H. perspectiva*, Mühlf.; *H. Meyerlei*, Jan., and *H. rotundata*, var. *depressa*, Fér.

H. engonata, Shuttleworth. Pl. 4, figs. 59–61.

Very widely perspectively umbilicated, depressed, somewhat solid, plicate-costulate above, scarcely shining, chestnut colored, suture moderately impressed; whorls $6\frac{1}{2}$, slowly increasing, periphery acutely carinated, base striate, acutely angulated around the umbilicus. Diam. 7 mill.

*Ins. Teneriffe.*

Var. pallidior, Mousson.

Maculated with horn-color, umbilicus defined by an obtuse angle.

H. SEMIPLICATA, Pfr. Pl. 4, figs. 62, 63.

Very widely umbilicated, subdiscoidal, somewhat solid, plicate above, light corneous, maculated with chestnut; whorls 7, very narrow, a little convex, periphery carinate, base convex, smoothish. Diam. 6·5 mill.

*Ins. Madeira.*

*H. Gueriniana*, Lowe, is a synonym.

H. CALATHOIDES, Paiva. Pl. 3, figs. 97–99.

Very widely, perspectively umbilicated, obsoletely or obtusely angulate or carinate, rather solid, with strong costæ above, ending at the angle, smoothish on the base, suture very distinct; whorls 7–8, a little convex, slowly increasing. Diam. 7–8 mill.

(Subfossil). *Ins. Bugio*, near *Madeira.*

Closely allied to the foregoing species.

H. RETEXTA, Shuttleworth. Pl. 4, figs. 64–66.

Umbilicated, depressed, rather thin, closely subarcuately costate above, chestnut color with paler maculations; apex more or less depressed; whorls 6, convex, narrow, subequal, periphery angulated, base shining, smoothish, umbilicus very wide.

Diam. 7 mill.

*Ins. Palma, Canaries.*

H. CORTICOLA, Cox. Pl. 5, figs. 71, 72.

Openly umbilicated, a little shining, irregularly strongly costulate, fulvous chestnut color, with radiating lighter lines; whorls 5, slopingly convex, periphery obtusely carinated, the carina obsolete at the mouth, base smoothish, with slight obsolete spiral lines. Diam. 8 mill.

*Richmond River, Australia.*

H. MUCOSA, Cox. Pl. 5, figs. 73, 74.

Widely, perspectively umbilicated, subdiscoidal, irregularly closely rugosely striated, rather solid, glimmering, apex submersed; whorls $4\frac{1}{2}$, slowly increasing, a little convex, the last deflected in front, periphery obsoletely carinate, base convex, less roughly striated than above. Diam. 8 mill.

*Clarence River, New South Wales.*

H. MUCOIDES, Stephens. Pl. 5, figs. 75, 76.

Widely umbilicated, rather solid, somewhat shining, irregularly corrugately striate, translucent, yellowish horn-color,

suture impressed; whorls 4½, rounded, gradually increasing, the last flat above, obtusely keeled, base roughly striate, with microscopic spiral lines. Diam. 3 mill.

*Victoria, Australia.*

H. FABREFACTA, Pease. Pl. 5, figs. 81, 82.

Very widely umbilicated, sublenticular, a little solid, subarcuately striate, soiled white irregularly radiated and maculated with brown; whorls 6–7, slowly enlarging, plane or a little concave at the carina, the penultimate exserted, the last acutely carinated, scarcely descending, planate below the periphery. Diam. 7·5 mill. *Ins. Raiatea.*

In a natural arrangement this would be classified with *H. ficta*, Pease, in Endodonta, although the mouth is unarmed.

H. OPAOANA, Gassies. Pl. 5, figs. 77, 78.

Widely umbilicated, obliquely and concentrically striated, reddish corneous, suture moderate; whorls 6, regularly increasing, the last depressed, periphery obtusely angulated, umbilicus carinated. Diam. 5 mill.

*Ins. Art and Balade, N. Caledonia.*

H. DISPERSA, Gassies. Pl. 16, figs. 73, 74.

Widely, deeply umbilicated, obliquely regularly striated, brownish, shining, suture deep, subcarinated; whorls 5, regularly increasing, carinate on the periphery. Diam. 5 mill.

*Isle of Pines, New Caledonia.*

H. MELITÆ, Gassies. Pl. 16, figs. 75, 76.

Widely, deeply umbilicated, acutely lamellated, the lamellæ silvery hirsute at the carina, chestnut-colored; whorls 4, a little convex, rapidly increasing, the last wide, scarcely descending, periphery carinated, suture deep, channeled. Diam. 3 mill.

*Ins. Art, N. Caledonia.*

H. TRICHOCOMA, Crosse. Pl. 16, fig. 77.

Widely umbilicated, subobliquely corrugately striated, chestnut colored, marbled with white, under a laciniated brownish epidermis, suture impressed; whorls 5, planate, the last scarcely descending, acutely carinated, base subinflated, a little convex, obtusely carinated around the umbilicus; aperture chestnut colored, shining. Diam. 8 mill.

*Mt. Mou, New Caledonia.*

H. ARCUATA, Pfr. Pl. 5, fig. 84.

Umbilicated, thin, pellucid, light corneous, closely regularly arcuately plicate; whorls 6, scarcely convex, with serrulate carina, compressed around the umbilicus; aperture wide.

Diam. 5·5 mill.

*Cagayan, Ins. Luzon.*

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*Unfigured Species of Goniodiscus.*

H. GORGONARUM, Dohrn. *Cape Verd Is.*

*H. aluta*, Alb., is a synonym.

H. BOUVIERI, Morelet. *Cape Verd Is.*

Probably a var. of *H. Gorgonarum*, Dohrn.

H. ELATIOR, A. Adams. *Japan.*
H. DEPRESSA, A. Adams. *Japan.*
H. HYPTIOCYCLOS, Benson. *Ceylon.*
H. MURPHYI and H. URARENSIS, Cox. *Australia.*
H. EXAGITANS and H. DEPSTA, Cox. *Norfolk I.*
H. KINGI, Brazier. *Tasmania.*
H. STEPHENSI, Cox (Syns. *H. Du Cani*, *H. plexus*, *H. spoilata*, *H. scrupulus*, *H. Coepta*, of Cox; *H. Irvinæ*, *H. Savesi*, *H. Pascoei*, *H. Floodi*, *H. Kingi*, Brazier, teste R. M. Johnston). *Tasmania.*
H. OCEANICA, Guillou. *Tahiti.*
H. CAPILLATA, Pease. *Kauai, Sandwich Is.*

Subsection AMPHIDOXA, Albers, 1850.

H. MARMORELLA, Pfr. Pl. 20, fig. 54.

Shell perforate, very thin, distantly costulate, pellucid, straw-colored with oblique chestnut strigations and maculations; whorls 3, scarcely convex, rapidly enlarging, base a little more convex. Diam. 7 mill.

*Ins. Juan Fernandez.*

H. HELICOPHANTOIDES, Pfr. Pl. 20, fig. 55.

Perforate, thin, obliquely, closely costulate-striate, straw-color, tessellated and strigate with chestnut; whorls $3\frac{1}{2}$, rapidly enlarging, the last depressed. Diam. 4·6 mill.

*Ins. Juan Fernandez.*

[Subsection STEPHANODA, Albers, 1860.]

H. ARCTISPIRA, Pfr. Pl. 5, fig. 85.

Umbilicated, depressed, subdiscoidal, closely costate, whitish, under a thin brownish epidermis; whorls $5\frac{1}{2}$, convex, very narrow; umbilicus wide, perspective. Diam. 2·5 mill.

*Ins. Juan Fernandez.*

H. TESSELLATA, Mühlf. Pl. 5, fig. 86.

Moderately umbilicated, discoidal, thin, light corneous, with undulating chestnut strigations; whorls 6–7, flattened, very narrow, the last subinflated below. Diam. 4 mill.

*Ins. Juan Fernandez.*

*H. contortula*, Fér., is a synonym.

H. SELKIRKI, Smith. Pl. 5, fig. 87.

Narrowly umbilicated, thin, pale, spotted above with red, irregularly streaked beneath with a lighter tint, with close-set, hair-like striæ; whorls 6–7, very narrow, slowly increasing, convex, suture narrowly channeled; last whorl a little constricted above the middle. Diam. 4 mill.

*Ins. Juan Fernandez.*

Whorls broader, and umbilicus more open than in *H. tessellata;* differs also in the constriction of the last whorl.

H. QUADRATA, Fér. Pl. 5, fig. 88.

Widely, perspectively umbilicated, very closely slightly striated, thin, diaphanous, yellowish, flamed with chestnut and with one to three bands; whorls $5\frac{1}{2}$, somewhat convex, rapidly enlarging. Diam. 7 mill.

*Juan Fernandez.*

Var. $\beta$. Yellowish, obscurely zoned with reddish brown.

*H. Kingi*, Pfr., is a synonym.

H. CEROIDES, Pfr. Pl. 5, fig. 89.

Moderately umbilicated, thin, very minutely striated, gray-waxy, suture rather deep; whorls 4, slightly convex, slowly increasing, the last not descending, rounded. Diam. 5 mill.

*Ins. Juan Fernandez.*

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H. PUSIO, King. (Unfigured?=*quadrata.*) *Ins. Juan Fernandez.*

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H. Hookeri, Reeve. Pl. 5, fig. 83.

Narrowly perforate, somewhat solid, striate, with a brownish olivaceous epidermis; whorls 4–4½, convex, moderately increasing, the last not descending, depressed, rounded. Diam. 7 mill.

*Kerguelen Island.*

H. dissimilis, d'Orb. Pl. 5, fig. 90.

Widely umbilicated, depressed, thin, closely plicatulate above, light corneous straw-color, maculated and flamed above with chestnut, the space with spiral series of chestnut dots; whorls 5½, convex, suture deep. Diam. 11 mill.

Near *Concepcion, Chili.*

*H. histrio*, Mühlf., and *H. plagiata*, Beck, are synonyms.

H. Binneyana, Pfr. Pl. 5, fig. 91.

Widely umbilicated, discoidal, yellowish corneous, with undulating chestnut strigations, base obsoletely marbled, irregularly plicate, with very close, impressed, spiral lines above, more obsolete below; whorls 5, the last narrow, scarcely descending. Diam. 15 mill.

*Ins Chiloe.*

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H. tenuistria, H. zebrina, Phil. (Unfigured.) *Chili.*
H. Gratioleti, Hupé. (Unfigured.) *Chili.*

Subsection Macrocycloides, Martens, 1867.

H. obscurata, Ads. and Reeve. Pl. 5, figs. 92–94.

Widely umbilicated, somewhat thin, costulate-striate, decussated by close spiral lines, shining, diaphanous, olivaceous corneous; suture deep; whorls 5, a little convex, the last large; margins of aperture approaching. Diam. 12 mill.

*Borneo.*

*H. Arthurii*, Pfr., and *H. tradita*, Reeve, are synonyms.

H. lutea, Martens. Pl. 5, figs. 95–97.

Perspectively umbilicated, striulate, shining, yellowish, suture rather deep; whorls 3½–4, somewhat flattened above, periphery and base rounded; margins of aperture distant. Diam. 11 mill.

*Ins. Buru, Moluccas.*

H. EUSTROPHES, A. D. Brown.

Very widely umbilicated, solid, shining, with distant incremental striæ, reddish brown, with yellowish flames; whorls 6, plano-convex; aperture violaceous. Diam. 30 mill.

*Solomon's Is.*

H. VERONICA, Pfr. Pl. 5, fig. 98.

Rather widely umbilicated, very minutely radiately striulate, at the suture obsoletely spirally striate, pellucid, shining, greenish corneous; whorls $3\frac{1}{2}$, somewhat flattened, rapidly enlarging, the last depressed, not descending in front, periphery rounded; aperture a little oblique, rounded lunate, margins approaching. Diam. 12 mill.

*Solomon's Is.*

Subsection TRICHODISCUS, Strebel and Pfeffer.

H. CORDOVANA, Pfeiffer. Pl. 5, figs 99–1.

Widely umbilicated, thin, subgranulated and shortly pilose, corneous, with two narrow chestnut bands above; suture deep, channeled; whorls $4\frac{1}{2}$, turgid, the last obsoletely sulcate above the periphery; margins of aperture approaching, expanded above. Diam. 12·3 mill.

*Cordova, State of Vera Cruz, Mexico.*

It is *H. coactiliata*, var. *β*, of Crosse and Fischer.

H. COACTILIATA, Férussac. Pl. 5, fig. 2.

Widely umbilicated, thin, very minutely granulate-striate, not shining; light corneous, with 3 or 4 narrow chestnut bands; whorls 4, convex, the last subdeflected in front; aperture obliquely subcircular, the margins almost contiguous.

Diam. 11 mill. *Nicaragua; Chiapa, Mexico; Venezuela.*

It is *H. fasciata*, Nyst; *H. Nystiana*, Pfr.; *H. quinquestrigata*, Beck; *H. Parkeri*, Tryon (*H. Bridgesi*, Tryon, not Newcomb).

H. SUTURALIS, Pfr. Pl. 5, fig. 3.

Widely umbilicated, thin, lightly, very minutely granulose (pilose), brownish corneous; spire plane, subimmersed in the middle; suture deep; whorls 4, very convex, the last descending in front; aperture obliquely subcircular, margin of aperture approaching. Diam. 10 mill.

*Honduras.*

*H. coactiliata*, var. *γ*, of Crosse and Fischer, is a synonym.

H. PRESSULA, Morelet. Pl. 5, figs. 4, 5.

Openly umbilicated, thin, translucent, minutely granulose, corneous, with a dark brown band; suture deep; whorls $4\frac{1}{2}$, the last deflected in front, base convex; aperture obliquely lunar, margins approaching. Diam. 10 mill.

*Pacific Shore of Guatemala.*

H. OAJACENSIS, Koch. Pl. 5, figs. 6, 7.

Rather widely umbilicated, obliquely roughly striate, lightly, very minutely granular, obtusely carinate, brownish corneous, with two yellowish bands, one superior, the other at the carina; whorls $4\frac{1}{2}$, scarcely convex; aperture lunately subcircular, brownish within, with two white bands. Diam. 15 mill.

*Oajaca, Mexico.*

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H. OBSITA, Pfr. (unfigured). *Mexico.*

Subsection THYSANOPHORA, Strebel and Pfeffer.

H. IMPURA, Pfr. Pl. 5, figs. 8–10.

Moderately umbilicated, rather thin, rugosely costulate, slightly spirally striate, corneous, suture deep; whorls 5, the last one subdepressed, not descending, base costulately striate.

Diam. 4 mill.

*Mirador, Vera Cruz, Mexico.*

H. PALEOSA, Strebel. Pl. 5, figs. 11–13.

Shell umbilicated, rather solid, shining, reddish brown, rugosely costulate, with microscopic spiral lines; whorls 5, the last spread out, with flattened base, so that the periphery appears indistinctly angulated, and the umbilicus is narrower, with steeper walls than in *H. impura*. Diam. 4·5 mill.

*Forest of Pacho, Mexico.*

H. CONSPURCATELLA, Morelet. Pl. 5, figs. 14–16.

Widely umbilicated, scarcely convex above, turgid below, membranously striulate, corneous, suture deep; whorls 3-4, the last subdilated in front, angulate above the periphery.

Diam. 3·5 mill.

*Merida, Yucatan; Guatemala.*

H. TURBINELLA, Morelet. Pl. 5, figs. 17, 18.

Umbilicus very narrow; whorls 5, slightly convex, the last compressed, subangulated, irregularly, subobliquely, rugosely striulate, diaphanous, thin, greenish white. Diam. 5 mill.

*Guatemala.*

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H. ALMONTEANA, Tristram (unfigured). *Guatemala.*

Section PYRAMIDULA, Fitz., 1833.

H. RUPESTRIS, Drap. Pl. 9, figs. 87–90.

Umbilicated, minutely striated, waxy, brownish corneous; whorls 5, convex, the last not descending; aperture rounded. Diam. 3·25 mill.

*Europe.*

It is *H. umbilicata*, Montagu; *H. aliena*, Ziegler; *H. spirula*, Villa; *H. saxatilis*, Hartm.; *H. Myrmecidis*, Scacchi.

Var. TROCHOIDES, Fér. Fig. 90.

Trochoidal, dark brown, narrower umbilicus.

Var. PINII, Adami.

Larger, pyramidal, striæ stronger, suture deeper; whorls more rounded. Diam. 3–4 mill.

*N. Italy.*

H. JAENENSIS, Clessin. Pl. 9, figs. 91, 92.

Moderately umbilicated, thin, finely striated, brownish corneous, apex obtuse; whorls 5–5½, rounded, with deep suture, slowly increasing. Diam. 2, alt. 2·5 mill.

*Jaen, Spain.*

Perhaps only an elevated var. of *H. rupestris.*

H. ASSARINENSIS, Calcara. Pl. 9, fig. 93.

Umbilicated, fulvous chestnut, maculated with white; whorls 5, flatly convex, longitudinally obliquely striated, first two smooth. Diam. 6 mill.

*Sicily.*

H. PLACIDA, Shuttleworth. Pl. 9, fig. 94.

Widely umbilicated, thin, diaphanous, waxy, corneous, lightly striate; whorls 5, convex, slowly increasing, the last scarcely descending in front. Diam. 3·25 mill.

*Ins. Teneriffe.*

H. Hierosolymitana, Bourg. Pl. 9, fig. 95.

Narrowly, scarcely perviously umbilicated, rather thin, slightly plicate-striate, scarcely shining, subdiaphanous, fuscous; whorls 4, a little convex, the last not descending. Diam. 2·66 mill.
*Jerusalem.*

H. Bascauda, Benson. Pl. 7, figs. 65, 66.

Narrowly, profoundly umbilicated, with remote oblique elevated ribs, flexuous below; brownish corneous, suture impressed; whorls 6, a little convex, the last not descending, with a thread-like carina at the periphery, convex below, subangulated around the umbilicus. Diam. 4·5 mill. *Khasia Mts., India.*

*H. polypleuris*, Blanford (fig. 66), from Arakan, is made a synonym by Nevill.

H. Abbadiana, Bourg. Pl. 9, figs. 99–1.

Openly, perviously umbilicated, irregularly densely plicate-striate, a little shining, reddish brown; whorls 4, inflated, with deep suture, the last convex above and below, scarcely angulated at the periphery, not deflected in front; aperture subcircular. Diam. 2 mill. *Egypt, Abyssinia.*

*H. cryophila*, Morelet (non Martens), and *H. Brocchii*, Jickeli, are synonyms.

H. Brucei, Jickeli. Pl. 9, figs. 2–4.

Narrowly umbilicated, opaque, obliquely costulate, grayish brown, ribs of the last whorl larger, submembranaceous, the interstices lightly longitudinally striate, base with scarcely conspicuous impressed lines; whorls scarcely 3, subinflated, suture deep, the last not deflected, convex below. Diam. 1·6 mill.
*Abyssinia.*

H. amblygona, Reinhardt. Pl. 9, figs. 96–98.

Umbilicated, depressed turbinate, reddish brown, striated, the younger shell membranously lamellate; whorls 4, the last slightly deflected, periphery obtusely angulated. Diam. 2·5 mill.
*Japan.*

*Unfigured and Spurious Species.*

H. hypocrita, Dohrn. *Cape Verd Is.*
H. arenicola, Tate. *Australia.*
H. Calpis, Benson. Near *Darjiling, Ind.*

Blanford writes: "This species was described from specimens

collected by myself in 1856. I had but an imperfect knowledge of land mollusks at the time, or I should have seen at once, as I did some years afterwards, when re-examining my collection, that the shells were all young specimens of *Raphaulus Blanfordi* (Jour. Asiat. Soc. Bengal, 211, 1880).

(Subsection MICROCONUS, Strebel, 1880.)

H. WILHELMI, Pfr. Pl. 9, figs. 5, 6.

Widely umbilicated, depressed conical, thin, striulate, shining, chestnut-brown, suture deep; whorls 4, tumid, the last narrow, not descending. Diam. 3 mill.

*Mirador, State of Vera Cruz, Mexico.*

H. PUNCTUM, Morelet. Pl. 9, fig. 7.

Covered perforate, brownish corneous; whorls $3\frac{1}{2}$, convex; columellar lip reflected on the umbilicus. Diam. 1·66 mill.

*Merida, Yucatan.*

H. JEANNERETI, Pfr.

Narrowly umbilicated, thin, very lightly striulate, shining, dark brown; whorls $3\frac{1}{2}$, turgid towards the deep suture, last whorl rounded, not descending in front. Diam. 2·33 mill.

*Cuba.*

Unfigured.

H. PLEUROPHORA, Moricand. Pl. 9, figs. 8, 9.

Umbilicated; whorls 5, convex, elegantly elevately costulate, grayish, unicolored or maculated with fulvous. Diam. 3 mill.

*Bahia, Brazil.*

Subsection ACANTHINULA, Beck, 1846.

H. ACULEATA, Müller. Pl. 9, figs. 10–12.

Perforate, lamelliformly costate, the costæ elongately ciliated, yellowish corneous; whorls 4, convex; peristome membranaceous, subexpanded, the margins approaching. Diam. 2·5 mill.

*Europe.*

The synonyms are *H. spinulosa*, Lightfoot; *H. delectabilis*, Solander; *H. Granatelli*, Bivona; *H. terrestris*, Da Costa.

Var. ALBIDA, Jeffreys.

Shell white or whitish.

Var. SUBLÆVIS, Westerlund.

Costæ obsolete, without ciliæ, lip rose-colored.

H. PERACANTHODA, Bourg. Pl. 22, figs. 20–22.

Narrowly perforate, brownish, costate, the costæ lamelliform on the last whorl and spinously prolonged on the periphery; whorls 4, convex, rapidly enlarging, periphery angulated.

Alt. 1·5 mill.

*Abyssinia.*

First described by Bourguignat as *H. Raffrayi*, preoccupied by Tapparone-Canefri.

H. HARPA, Say. Pl. 9, figs. 13, 14.

Subperforate, very thin, slightly striate, distantly plicate, pellucid, olivaceous corneous; whorls 4, convex, the last rounded. Alt. 3·5, diam. 2 mill.

*Northern United States*, *Labrador*, *Siberia*, *Sweden*, etc.

The synonyms are *Pupa costulata*, Mighels, *H. Amurensis*, Gerstf. It is viviparous, and is the type of Morse's genus *Zoogenetes*.

H. SPINIFERA, Mousson. Pl. 9, figs. 15–17.

Very minutely perforated, rather thin, corneous yellow, pellucid, with remote lamellate striæ, and long membranaceous ciliæ; whorls $3\frac{1}{2}$, convex, the last not descending, rounded or rounded-angular on the periphery, base subtumid around the perforation; lip very slightly expanded, the extremities converging, united by a thin callus. Diam. 1·75 mill.

*Ins. Palma*, *Canaries.*

H. LAMELLATA, Jeffreys. Pl. 9, figs. 18, 19.

Perforate, beautifully membranously costulate, waxy, corneous; whorls 5, subequal; aperture depressed, lunar.

Diam. 2·3 mill.

*England*, *Ireland*, *Sweden.*

It is *H. Scarburgensis*, Turton, and *H. seminulum*, Rossm.

H. MONAS, Morelet. Pl. 9, figs. 20, 21.

Perviously umbilicated, striolate, waxy, fulvous; whorls 4, subequal, convex, laterally compressed, suture profound.

Diam. 2 mill.

*Ins. San Miguel*, *Azores.*

H. CÆCOIDES, Tate. Pl. 9, fig. 22.

Minutely perforated, a little shining, brownish corneous, with equal distant lamellæ; whorls 4, convex, suture profound; aperture almost circular. Diam. 2 5 mill.

*Chontales Forest, Nicaragua.*

H. CÆCA, Guppy. Pl. 9, fig. 23.

Scarcely perforate, obliquely costulate, brownish corneous, apex smooth, suture deep; whorls 4, aperture obliquely subcircular, the extremities of the peristome joined by a diffused columellar callus. Diam. 2 mill.

*Ins. Trinidad, West Indies.*

H. IERENSIS, Guppy. Pl. 9, fig. 24.

Profoundly umbilicated, somewhat obliquely costulate, brownish corneous, apex smooth, suture deep; whorls 5, slightly carinated. Diam. 3 mill.

*Ins. Trinidad, W. Indies.*

H. BACTRICOLA, Guppy. Pl. 9, fig. 25.

Perspectively, widely umbilicated, closely radiately costulate, brownish corneous; whorls 7, narrow, slowly increasing, the last with carinate periphery, apex smooth, shining. Diam. 4 mill.

*Ins. Trinidad, West Indies.*

H. GRANUM, Strebel. Pl. 9, figs. 26–28.

Narrowly perforate, thin, light horn-color, scarcely shining, indistinctly costulate; whorls 4, well rounded, with deep suture. Diam. 2·8 mill.

*Mirador, Mexico.*

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H. HARPULA, Reinhardt. (Unfigured.) *Japan.*

Section ANGUISPIRA, Morse, 1864.

H. IDAHOENSIS, Newcomb. Pl. 10, figs. 29–31.

Profoundly umbilicated, ashy corneous; whorls 5, the two first smooth or minutely obliquely striate, the others crossed by strong, thin, sharp, white costæ, from 20 to 26 in the last whorl, suture well impressed. Diam. 13–18 mill.

*Idaho.*

Varies considerably in its proportions, some specimens being much flatter. Notwithstanding the fact that the sculpture in

the typical specimens runs in the opposite direction from *H. Haydeni*, *H. Hemphilli*, *H. strigosa*, there is considerable evidence that this is only an extreme form of a series representing varietal developments from a common type. This relationship is almost demonstrated by the magnificent suites of specimens of these species in the Museum of the Philadelphia Academy.

H. STRIGOSA, Gould. Pl. 10, figs. 32–36, 42.

Umbilicated, moderately solid, irregularly costulately striate, scarcely shining, whitish or light yellowish, variegated and banded with chestnut; whorls 5, convex, the upper ones often carinate-margined, the last rounded or more or less obsoletely angulated, shortly descending in front. Diam. 15–25 mill.

*Oregon*, *Nebraska*, *Idaho*, *Utah*, etc.

With this are to be united the usually more elevated and smaller form *H. Cooperi*, W. G. Binney (figs. 35, 36), and *H. Bruneri*, Ancey. Dr. Fischer described some thirty years ago a Helix, supposed to be from New Caledonia, which, on account of a fancied resemblance to the European *H. cespitum*, he called *H. cespitoides*. The locality was soon shown to be erroneous, and Pfeiffer rather carelessly made it a synonym of *H. cespitum*. Ancey has recently declared it synonymous with *H. Cooperi*, and I agree with him. The figure of it, as published by Dr. Fischer, represents a specimen in which the bands have coalesced so as to give a uniform light chocolate-color, a rather frequent variation in the species of Anguispira.

H. HEMPHILLII, Newcomb. Pl. 10, figs. 37–39.

Widely umbilicated, rather thin, corneous white, with obscure brownish lines, transversely rugosely striate; whorls 5, convex to planulate above, the last acutely carinated or bicarinated, descending in front, the base convex, lightly striated.

Diam. 15 mill.

*Nevada*, *Colorado*.

The juvenile is acutely carinate, and shortly hirsute. Assuming *H. strigosa* to be the parent and normal form, this is almost certainly an intermediate between it and *H. Haydenii*, Gabb, one extreme of the series, as *H. Idahoënsis*, Newcomb, is probably the other extreme.

H. Haydenii, Gabb. Pl. 10, figs. 40, 41.

Widely umbilicated, cretaceous, with rough incremental striæ and strong revolving cords or ridges, suture impressed; whorls 5, regularly increasing, the last anteriorly deflected.

Diam. 18 mill.

*Weber Canon, Utah.*

When this species was described its resemblance to certain Madeira helices was pointed out, and Pfeiffer has since referred it to the Madeiran group Craspedaria. That it has the very distinct features of that group is apparent; yet suites of specimens before me show so conclusively its connection with *H. strigosa*, that I only continue to give it specific rank temporarily for convenience's sake.

H. alternata, Say. Pl. 10, figs. 43–48.

Widely umbilicated, moderately solid, obliquely costulate, yellowish or whitish, variegated above with chestnut maculations; whorls 6, flatly convex, a little tumid at the suture, the last rather narrow, not descending, periphery rounded or very obtusely subangulated. Diam. 16–25 mill.

*Eastern, Middle and Southern region of the United States.*

This is *H. scabra*, Lam.; *H. radiata*, Gmel.? *H. strongylodes*, Pfr.; *H. infecta*, Parreyss. A unicolored yellowish variety is of occasional occurrence; Mr. Bland described a form comparatively smooth, with a somewhat shining, subtranslucent epidermis, as var. *Fergusoni*. I do not think it entitled to varietal distinction.

Var. mordax, Shuttleworth. Figs. 47, 48.

Sublenticular, carinated, widely umbilicated, thin, yellowish corneous, with interrupted chestnut strigations, remotely flexuosely costate; whorls $5\frac{1}{2}$, flattened. Diam. 18 mill.

*Mountains of No. Carolina.*

This variation, insensibly connected with the parent form, points in the direction of *H. Cumberlandiana*, but the evidence for the inclusion of the last-named form is not so conclusive as in the parallel variation of *H. strigosa* (which replaces *alternata* in the far West) into *Haydenii*.

H. CUMBERLANDIANA, Lea. Pl. 10, figs. 49–51.

Widely umbilicated, acutely carinate, plicate-costate, light corneous, strigate and maculate with chestnut; whorls 5, rather flat, subexserted, the last not descending, with a compressed crenate carina on the periphery; aperture oblique, securiform. Diam. 14 mill.

*Cumberland Mts., E. Tennessee.*

See remarks under the preceding species.

H. SOLITARIA, Say. Pl. 10, figs. 52–55.

Umbilicated, somewhat solid, diaphanous, closely obliquely rugosely striate; yellowish corneous, with two or three chestnut bands; whorls 6, convex, with deep suture; aperture white, shining, showing the bands through the shell. Diam. 25 mill.

*Interior United States; valleys of the Mississippi River and its northern tributaries.*

The variations include light-colored specimens, without bands, and dark specimens caused by the widening and diffusion of the bands over the entire surface. *H. Kochi*, Pfr. (fig. 55), may be considered a synonym.

H. SUBRUDIS, Pfr. Pl. 10, fig. 56.

Moderately umbilicated, somewhat solid, rather rudely obliquely striate, lightly decussated by close spiral striæ, opaque, whitish, with a wide violaceous brown band at the suture, and another, narrow, at the periphery; whorls 5, a little convex, the last narrow, not descending. Diam. 17·5 mill.

*Hab. unknown.*

Perhaps a small specimen of the preceding species.

H. ARECIBENSIS, Pfr. Pl. 10, figs. 57–59.

Moderately umbilicated, thin, obliquely striated and obsoletely subgranulated by spiral lines, pellucid, waxy white; whorls $3\frac{1}{2}$, the last not descending, acutely carinated, base convex. Diam. 17 mill.

*Porto Rico, W. Indies.*

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H. DISCOIDES, Lesson. (Unfigured). *New Ireland.*

A doubtful species, known only by a very short description.

Section ENDODONTA, Albers, 1850.

I. *Umbilicated or perforate species.*

A. *Lamellæ palatal only.*

H. BERLIERI, Crosse. Pl. 11, figs. 62, 63.

Widely, perspectively umbilicated, rather thin, lightly longitudinally striulate, light corneous, unicolored, suture impressed; whorls $5\frac{1}{4}$, periphery rounded, base flattened; external margin of the aperture deeply quadrilirate, showing slightly through the whorl. Diam. 2·25 mill.

*New Caledonia.*

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H. DISPAR, Brazier. (Unfigured). *Mt. Wellington, Tasmania.*

B. *Lamellæ parietal only.*

a. *Ecarinate.*

H. VINCENTINA, Crosse. Pl. 11, fig. 64.

Perviously umbilicated, thin, not striated, dull fulvous corneous, unicolored, suture impressed; whorls 5, the first three subplanate, the others a little convex, the last not descending, rounded, base subplanate; aperture with an angular, whitish, median parietal lamina. Diam. 2 mill.

*St. Vincent, New Caledonia.*

H. JUGOSA, Mighels. Pl. 11, figs. 65–70.

Widely umbilicated, rather thin, somewhat closely costulate, the interstices minutely spirally striate, diaphanous, brownish; whorls 6, a little convex, the last subdepressed, not descending; aperture with a thin parietal lamina. Diam. 8 mill.

*Sandwich Islands.*

Var. RUBIGINOSA, Gould. Figs. 68–70.

Yellowish corneous, tessellated with chestnut, obliquely costate-striate.

H. HYSTRIX, Mighels. Pl. 11, figs. 71–73.

Widely umbilicated, regularly costulate, yellowish corneous, deciduously rigidly hirsute, tessellated with chestnut above; spire plane, subimmersed in the middle; whorls 5, convex, the

last descending, base decussated by more or less obsolete lines; aperture with two somewhat acute parietal lamellæ.

Diam. 5·75 mill.

*Sandwich Islands.*

*H. setigera*, Gould, is a synonym.

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H. DECUSSATULA, H. PAUCICOSTATA (*H. filocostata*, Pse., is a synonym), H. DISTANS, Pease. (Unfigured.) *Sandwich Islands.*

H. UNILAMELLATA, Garrett. Pl. 11, figs. 74–76.

Widely umbilicated, thin, corneous, tessellated and rayed with chestnut, obliquely, compressly, closely plicately ribbed, ribs finer and closer below; whorls 5, convex, slowly, regularly increasing; the last not descending in front, obtusely subangular on the periphery, more distinctly so around the umbilicus, suture channeled; parietal region with a single small lamella.

Diam. 4·5 mill.

*Rarotonga, Cook's Is.*

H. ROTELLINA, Pease. Pl. 11, figs. 82, 83.

Narrowly umbilicated, thinly, radiately, elevately striated, rather thin; whorls 5, convex, the last rounded; parietal wall with a single entering lamella; color alternate strigations of chestnut and yellowish. Diam. 2 mill.

*Ins. Aitutake.*

H. CONSIMILIS, Pease. Pl. 11, figs. 80, 81.

Widely umbilicated, rather thin, closely radiately costellate, tessellated with chestnut and yellow above, strigate with chestnut below; whorls 5, convex, suture impressed, periphery rounded; parietal wall with a single lamella. Diam. 4 mill.

*Tahiti, Raiatea.*

H. ACUTICOSTA, Mousson. Pl. 11, figs. 60, 61.

Widely umbilicated, closely arcuately ribbed-striate, corneous, with chestnut tessellations, suture deep; whorls 5, convex, slowly increasing, turgid next the suture, last whorl slightly depressed above, not descending, base convex; parietal wall with one, two or very rarely three lamellæ. Diam. 4·3 mill.

*Raiatea, Society Islands.*

Larger and more depressed than *H. consimilis*, the umbilicus larger and ribs finer. A uniform whitish horn-colored variety occurs.

H. RURUTUENSIS, Garrett. (Unfigured). *Rurrutu, Austral Is.*

b. *Carinate.*

H. OBOLUS, Gould. Pl. 11, figs. 77–79.

Rather thin, widely umbilicated, radiately, thinly, irregularly, rugosely striate, irregularly concentrically sulcate or thinly costate; whorls 7, convex, often angulated, the last with angulated periphery; aperture with a single parietal lamella. Diam. 6 mill.

*Ins. Raiatea, Taheiti.*

*H. acetabulum*, Pease; *H. celsa*, Pease; *H. Bariffi*, Garrett, and *H intermixta*, Mousson, are synonyms.

H. STELLULA, Gould. Pl. 11, figs. 84–86.

Widely umbilicated, planulate above, convex below, yellowish, maculated with chestnut; whorls 4, trigonal, with numerous elevated acute costæ, the periphery carinate; aperture with a parietal lamella. Diam. 5 mill.

*Sandwich Is.*

H. BINARIA, Pfr. Pl. 11, figs. 87, 88.

Moderately umbilicated, obtusely arcuately costate, spirally obsoletely striate, corneous, strigate with chestnut, suture margined; whorls $5\frac{1}{2}$, somewhat convex, slowly increasing, the last not descending, subacutely carinated; parietal wall with two white lamellæ, columella obsoletely dentate. Diam. 4·5 mill.

*Sandwich Islands.*

H. VELATA, Hombr. et Jacq. Pl. 11, figs. 89–91.

Narrowly umbilicated, striate, grayish corneous; whorls $5\frac{1}{2}$, planulate, the last with acutely carinated periphery, base convex, smoother; aperture with a compressed, subquadrate parietal lamina, basal margin subthickened. Diam. 8 mill.

*Ins. Hogoleu.*

H. HUAHEINENSIS, Pfr. Pl. 11, figs. 92–94.

Widely umbilicated, rather thin, striate, opaque, light corneous, strigate and maculate with chestnut, apex very minutely mucronate, suture linear; whorls 6, somewhat flattened, very slowly increasing, the last carinated, not descending in front, base subcompressed around the umbilicus; aperture with a single parietal lamella. Diam. 6 mill.

*Huaheine, Society Islands.*

*H. aranea*, Behn, is a synonym.

H. Taneæ, Garrett. Pl. 11, figs. 95–97.

Widely, perspectively umbilicated, thin, semipellucid, brownish horn color, tessellated and rayed with chestnut, distantly, somewhat irregularly, obliquely, arcuately, plicately ribbed, finer and more crowded on the base; whorls $6\frac{1}{2}$, convex, slowly and regularly increasing, slightly sulcate next the suture, the last acutely carinate, flattened above, not descending in front, convex beneath, angular around the umbilicus; parietal region with a small spiral lamella. Diam. 4·5 mill.

*Society Islands.*

*H. janeæ*, Schmeltz and *H. Boraborensis*, Pease, are synonyms.

H. ficta, Pease. Pl. 12, figs. 5–7.

Widely, deeply umbilicated, a little solid, whitish, somewhat chalky, radiately strigated and tessellated with chestnut; whorls 8, the outer sulcate near the margin, periphery acutely carinate, and angulated around the umbilicus; parietal wall with a spiral lamella. Diam. 7 mill.

*Society Islands.*

C. *Aperture with both parietal and palatal lamellæ.*

a. *Ecarinate.*

H. polyodon, G. W. Sowerby. Pl. 11, fig. 1.

Widely umbilicated, rather thin, closely costate, variegated with brown and white, suture impressed; whorls 8, very narrow, a little convex, the last not descending; aperture with two lamellæ on the parietal wall and two or more within the outer lip. Diam. 4·66 mill.

*Ins. St. Helena.*

Pfeiffer has adopted for this species the name *H. Helenensis*, Forbes.

*H. Alexandri*, Forbes, has two or three parietal plicæ, and eight additional within the lip, yet Pfeiffer considers the two identical. *H. polyodon*, G. W. Sowerby, agrees with *Alexandri*, and was the earliest described of the three species; admitting that the number of lip lamellæ is variable, they may be merged in one species, which should bear the oldest name—*H. polyodon.*

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H. Cutteri, Pfr. (unfigured). *St. Helena.*

H. Philippinensis, Semper (unfigured). *Manilla.*

H. DERBESIANA, Crosse. Pl. 11, figs. 2–4.

Widely umbilicated, rather thin, with impressed, close, longitudinal striæ, light fulvous corneous; whorls $4\frac{1}{2}$, moderately increasing, the last rounded, base planate, suture impressed; aperture with two parietal lamellæ, a shining corneous tooth on the base, two within the outer margin. Diam. 1·75 mill.

*New Caledonia.*

H. CONTORTA, Fér. Pl. 12, figs. 8–10.

Widely umbilicated, thin, fragile, striate, slightly pilose, yellowish, with radiating chestnut-colored flames; whorls $4\frac{1}{2}$, convex; aperture with two parallel parietal lamellæ, and five acute teeth within the right margin. Diam. 4 mill.

*Sandwich Islands.*

*H. intercarinata*, Mighels, is a synonym.

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H. HYSTRICELLA, Pfr. (unfigured). *Sandwich Islands.*
H. ANALOGICA, Pease (unfigured). *Marquisas.*
H. VERECUNDA, Pease (unfigured). *Marquisas.*

H SEXLAMELLATA, Pfr. Pl. 12, figs. 11–13.

Very narrowly perforate, thin, regularly costulate, yellowish, tessellated with chestnut-colored maculations; whorls 6, convex, narrow, base planulate; aperture with six acute elevated lamellæ, and some intermediate smaller obsolete ones. Diam. 3·25 mill.

*Gambier Islands.*

H. DECEMPLICATA, Mousson.

Moderately umbilicated, strongly striate costulate, white or grayish with angulated chestnut-colored fasciations; whorls $5\frac{1}{2}$–6, moderately increasing, rather narrow, more convex below; aperture with ten lamellæ, four of them parietal, of which the three upper ones are longest, six in the base and palate.

Diam. 2 mill.

*Ellice Is.*

Unfigured.

H. MULTILAMELLATA, Garrett. Pl. 12, figs. 14–16.

Deeply, widely umbilicated, thin, subpellucid, closely, lightly, lamellarly costate, costæ slighter and closer below, corneous, tessellated with chestnut above only, suture deeply impressed; whorls $6\frac{1}{2}$, convex, turgid above, slowly increasing; aperture

with five subequidistant lamellæ within the margin, besides two on the columella and four on the parietal wall.

Diam. 3·5 mill.

*Rarotonga, Cook's Islands.*

H. ZEBRINA, Garrett. Pl. 12, figs. 17–19.

Narrowly umbilicated, thin, pellucid, shining, whitish corneous, with chestnut tessellations on the spire and flexuous stripes on the body-whorl; whorls $5\frac{1}{2}$, convex, slowly increasing, membranously closely ribbed, the interstices under the lens elevately striated, suture deeply impressed, aperture with three lamellæ within the lip and two on the parietal region.

Diam. 4 mill.

*Rarotonga, Cook's Is.*

H. RAROTONGENSIS, Pease.

Umbilicated, rather thin, radiately elevately striate, suture well impressed; whorls 5, convex; aperture with three parietal and two basal lamellæ; yellowish, tessellately strigated with chestnut. Diam. 3 mill.

*Rarotonga, Cook's Is.*

Unfigured.

H. PARVIDENS, Pease. Pl. 12, figs. 20–22.

Rather widely deeply umbilicated, with small, close, elevated striæ, yellowish, tessellated with chestnut; whorls 5, a little convex above, more rounded below, suture well impressed; aperture with two lamellæ in the throat, one on the columella, and three on the parietal wall.

*Tahiti.*

*H. incerta*, Mousson, is a synonym.

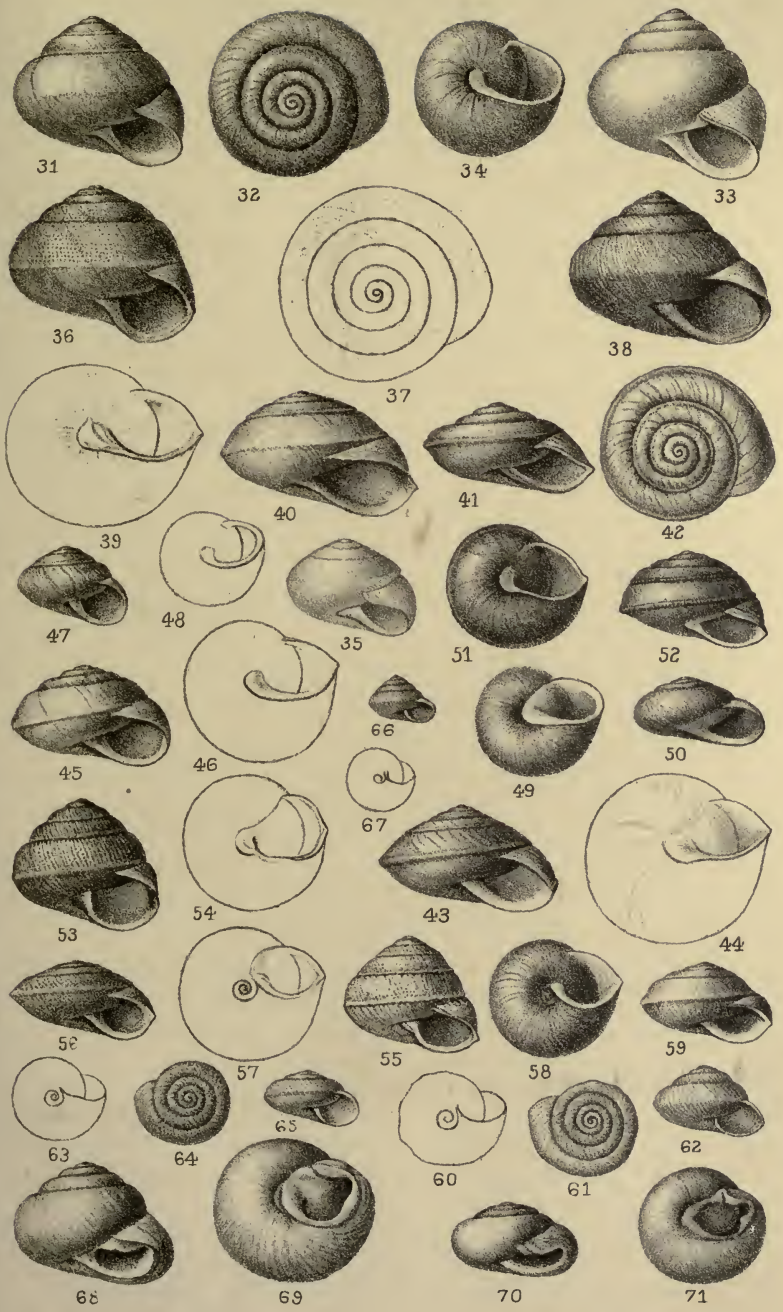
H. DÆDALEA, Gould. Pl. 12, figs. 23–25.

Yellowish brown, tessellated with chestnut, with acute, close, scabrous costulations; whorls 6, narrow, rounded below, suture impressed; aperture with nine lamellæ, of which four are on the parietal wall, one on the columella, two at the base and three within the lip. Diam. 2·5 mill.

*Ins. Tahiti, Matea.*

H. SUBDÆDALEA, Mousson. Pl. 12, fig. 26.

Widely umbilicated, unequally costulate-striate, light corneous, sometimes with oblique chestnut stripes, suture deep; whorls $5\frac{1}{2}$, slowly increasing, narrow, the last a little tumid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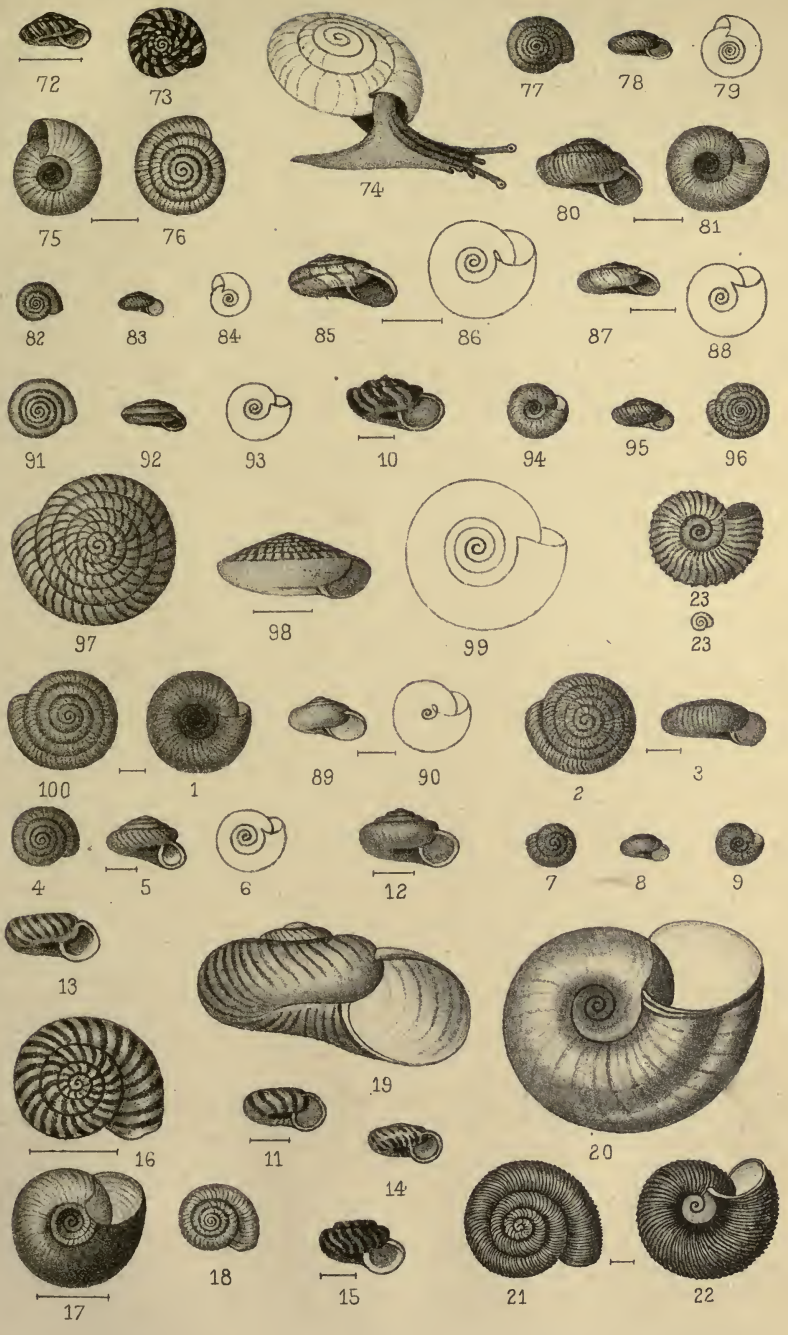
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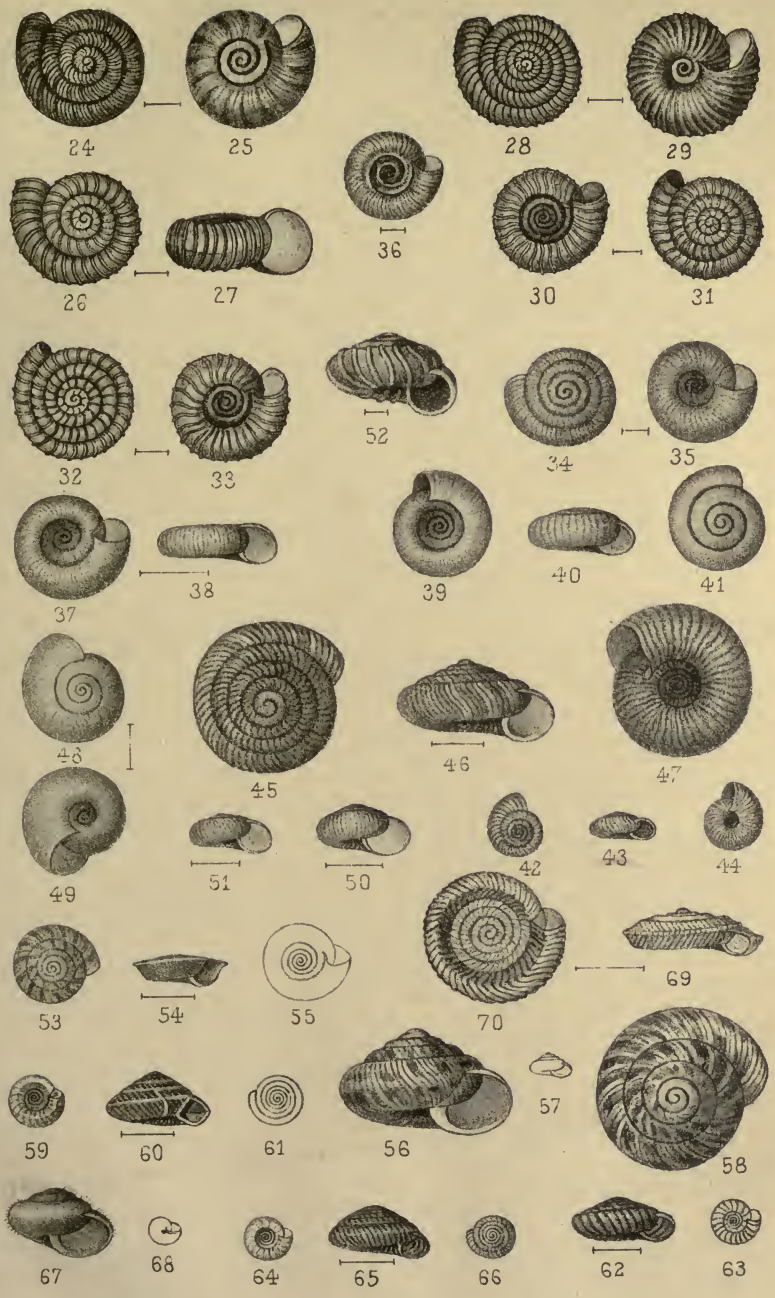
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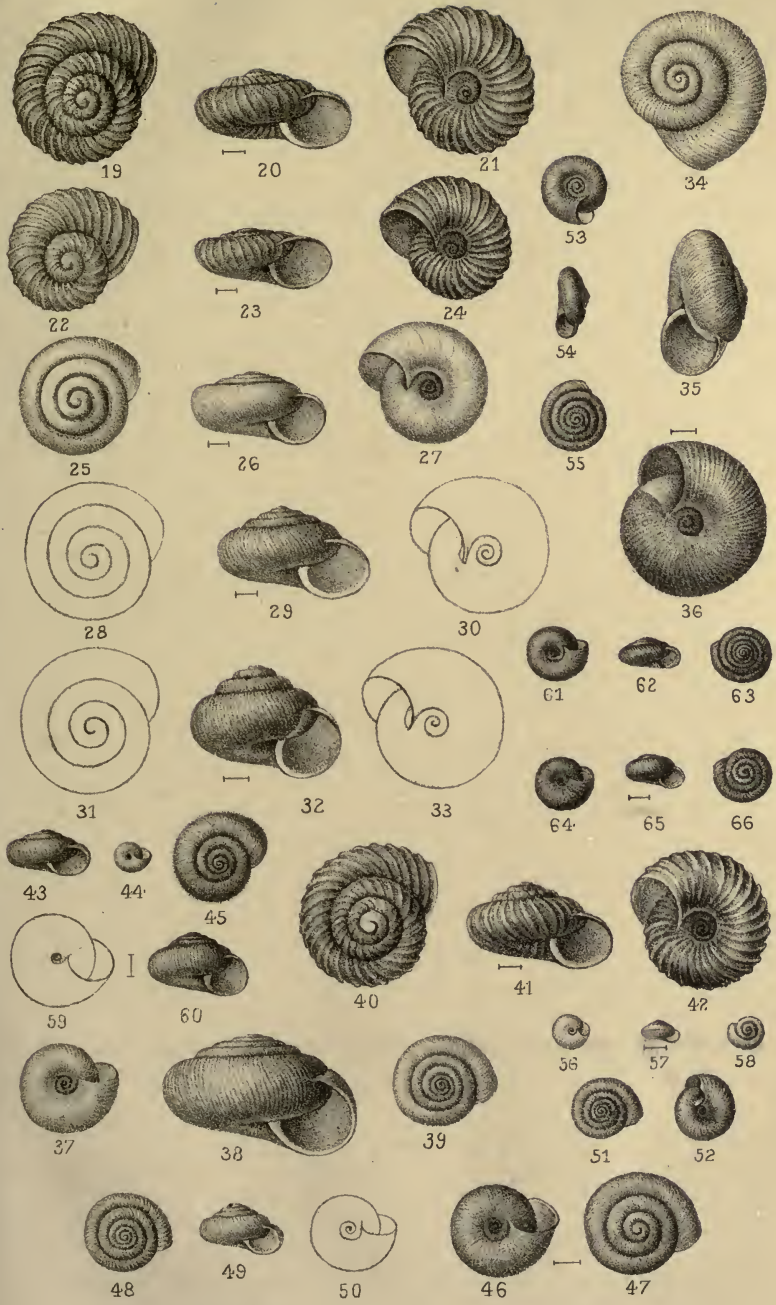
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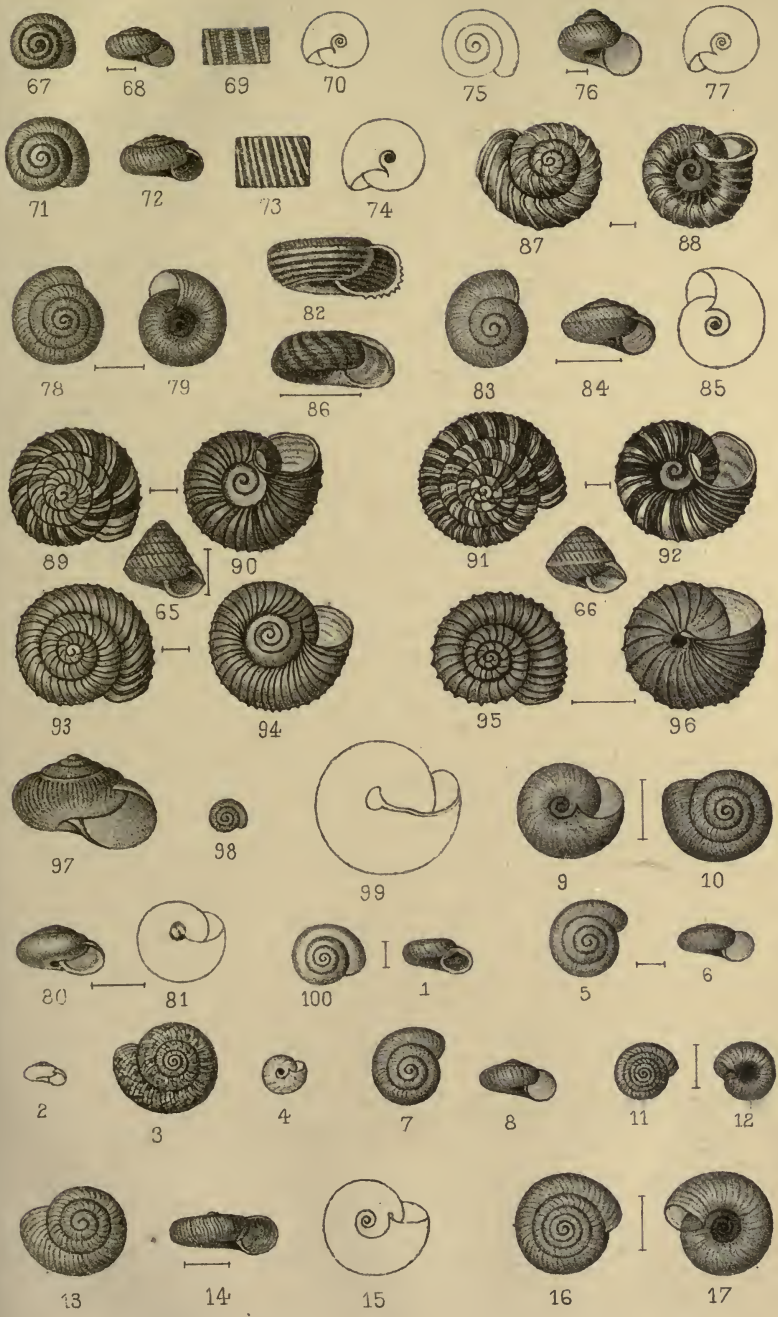
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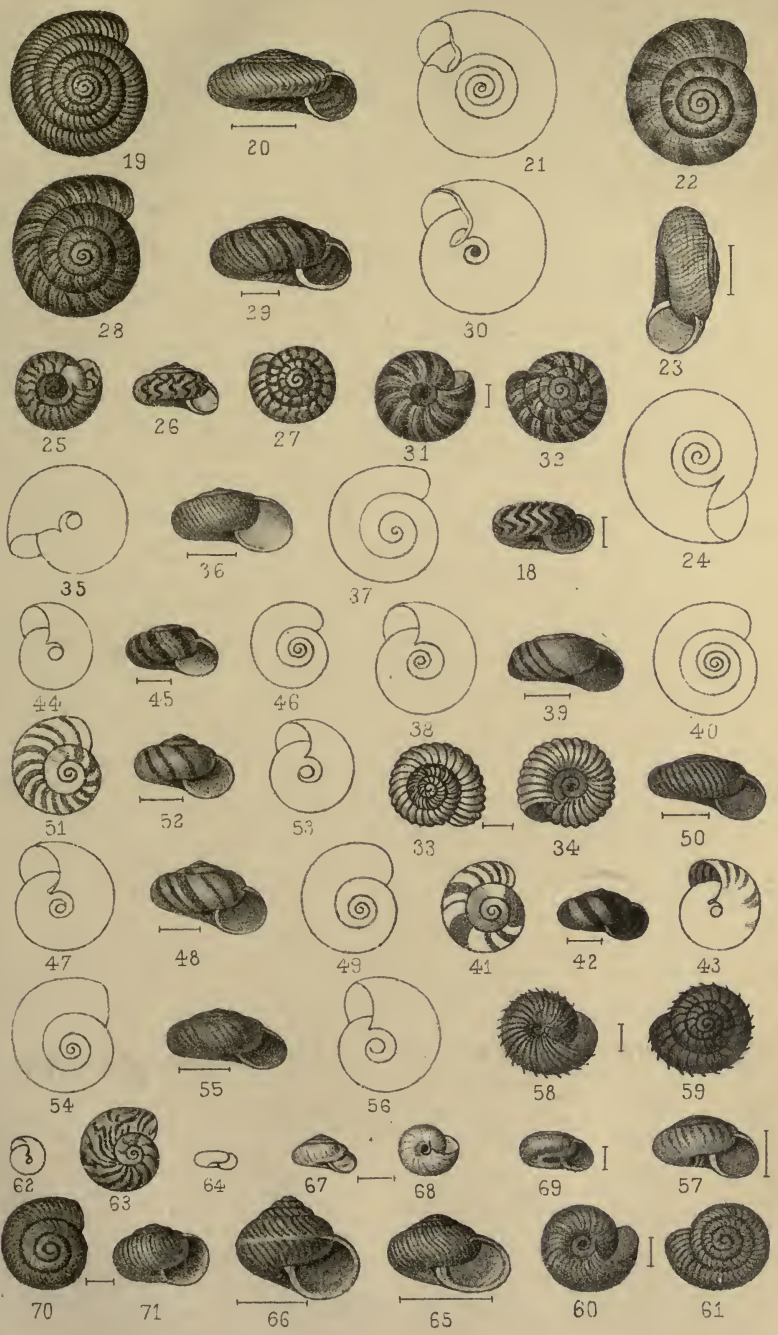
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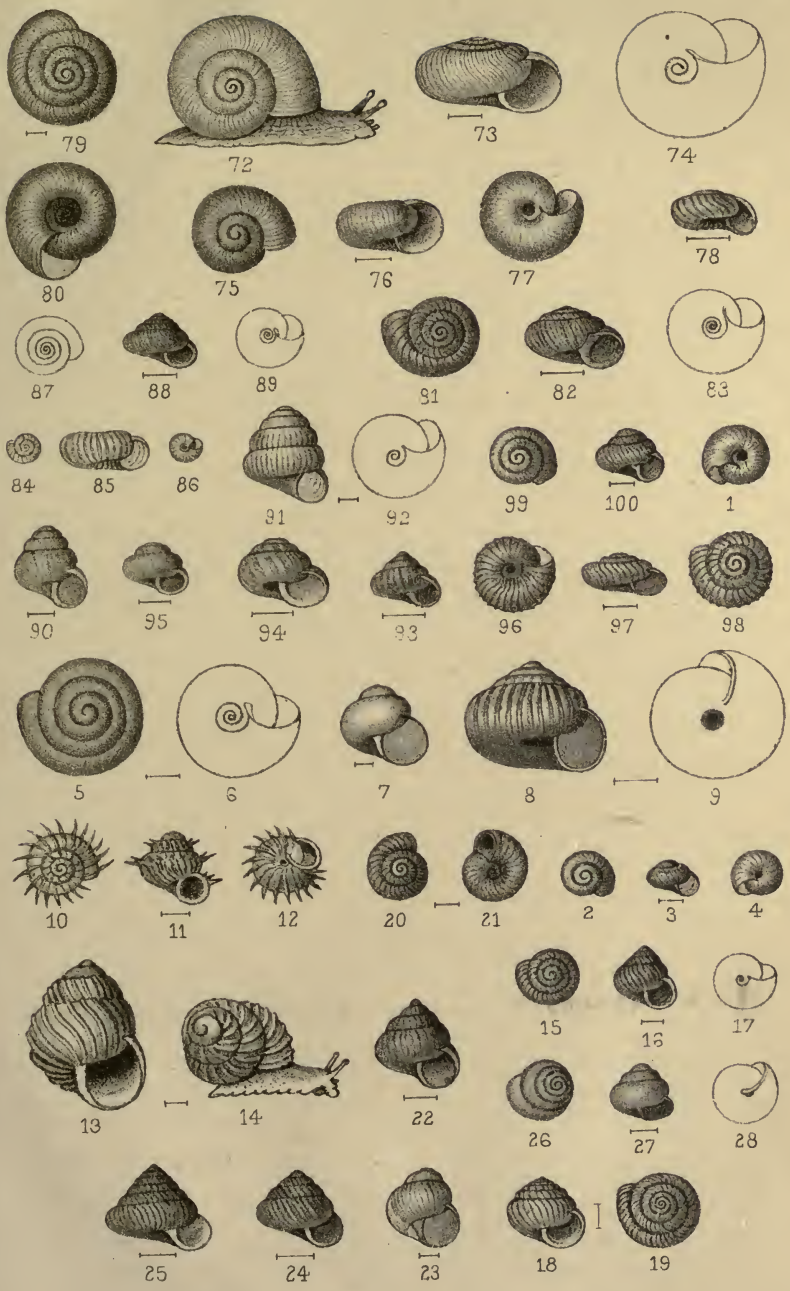
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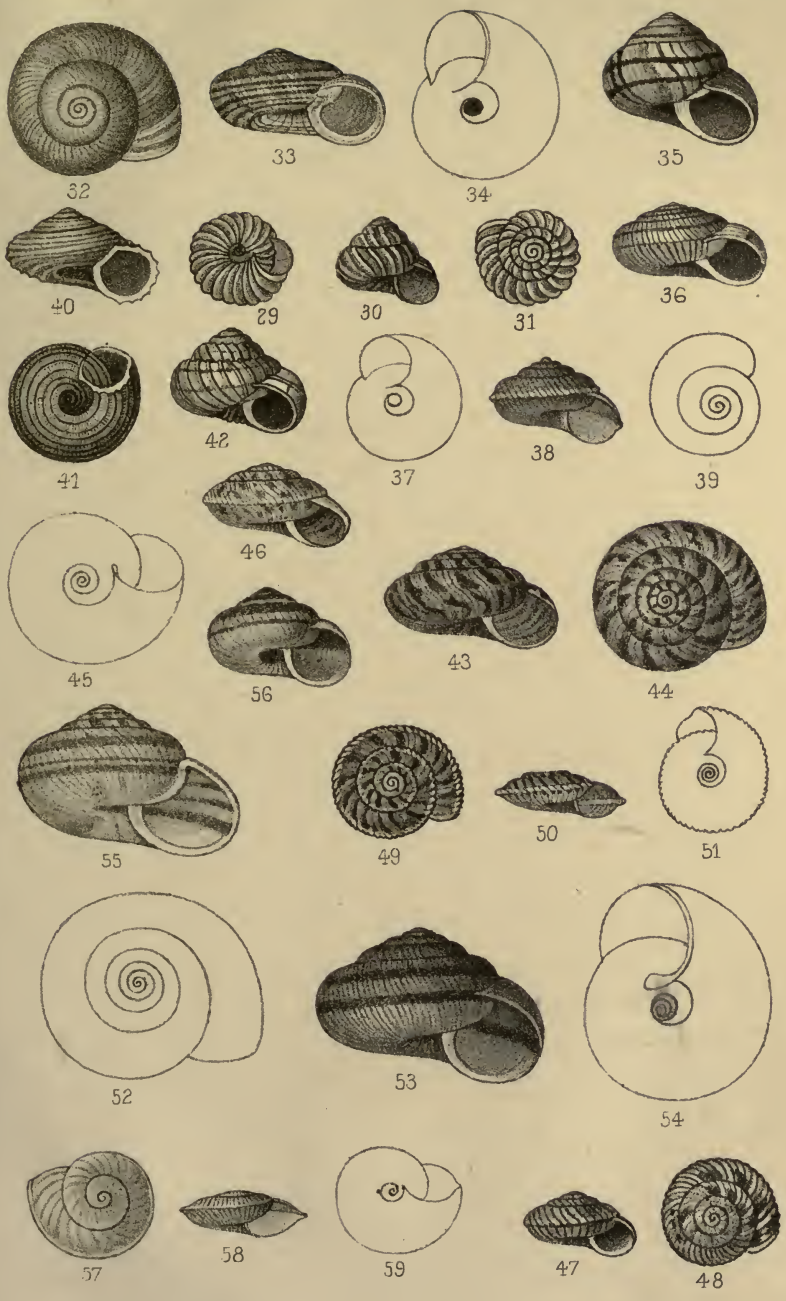
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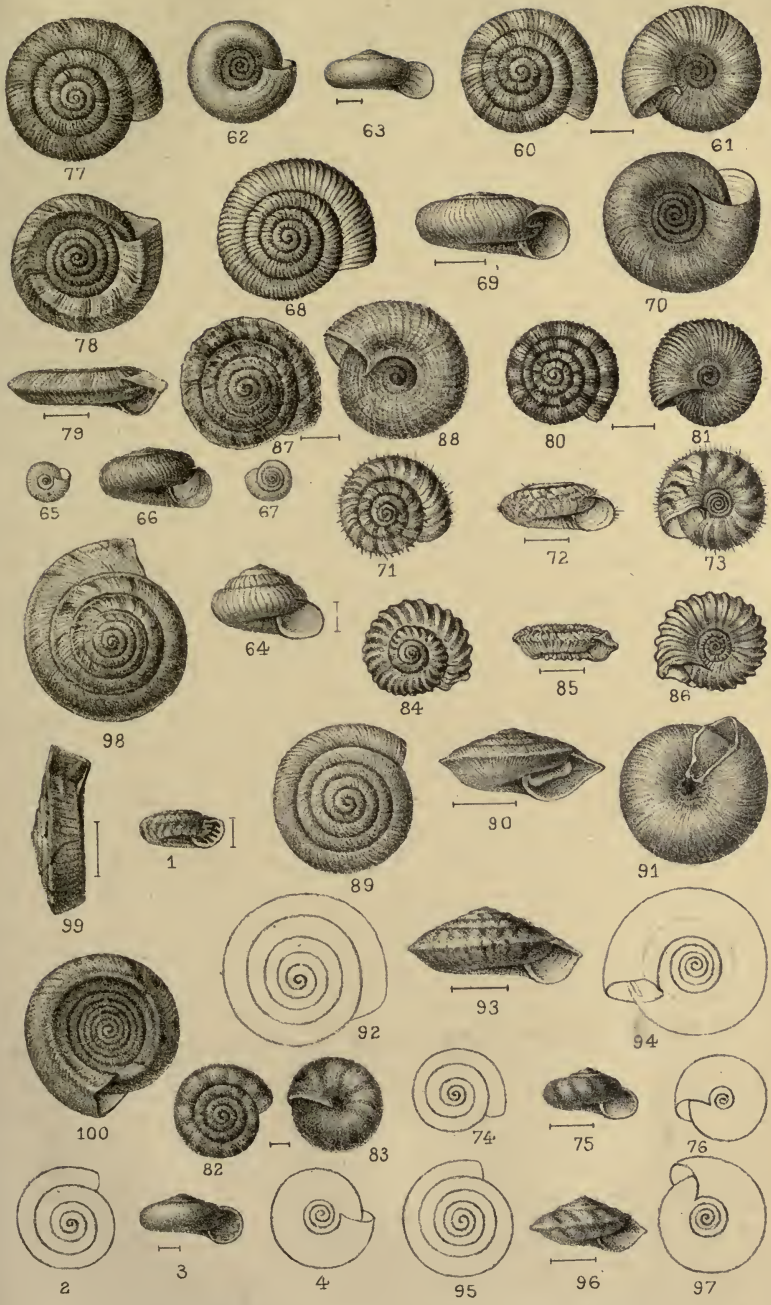
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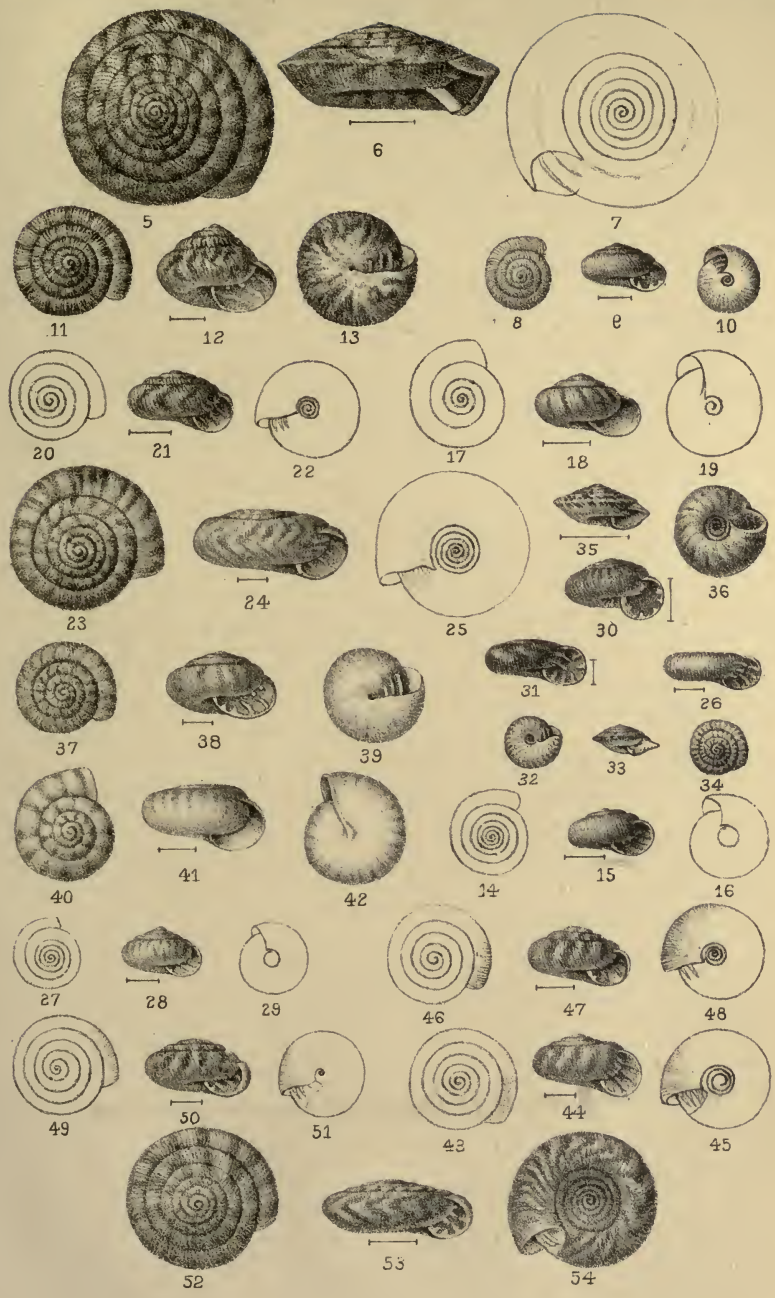
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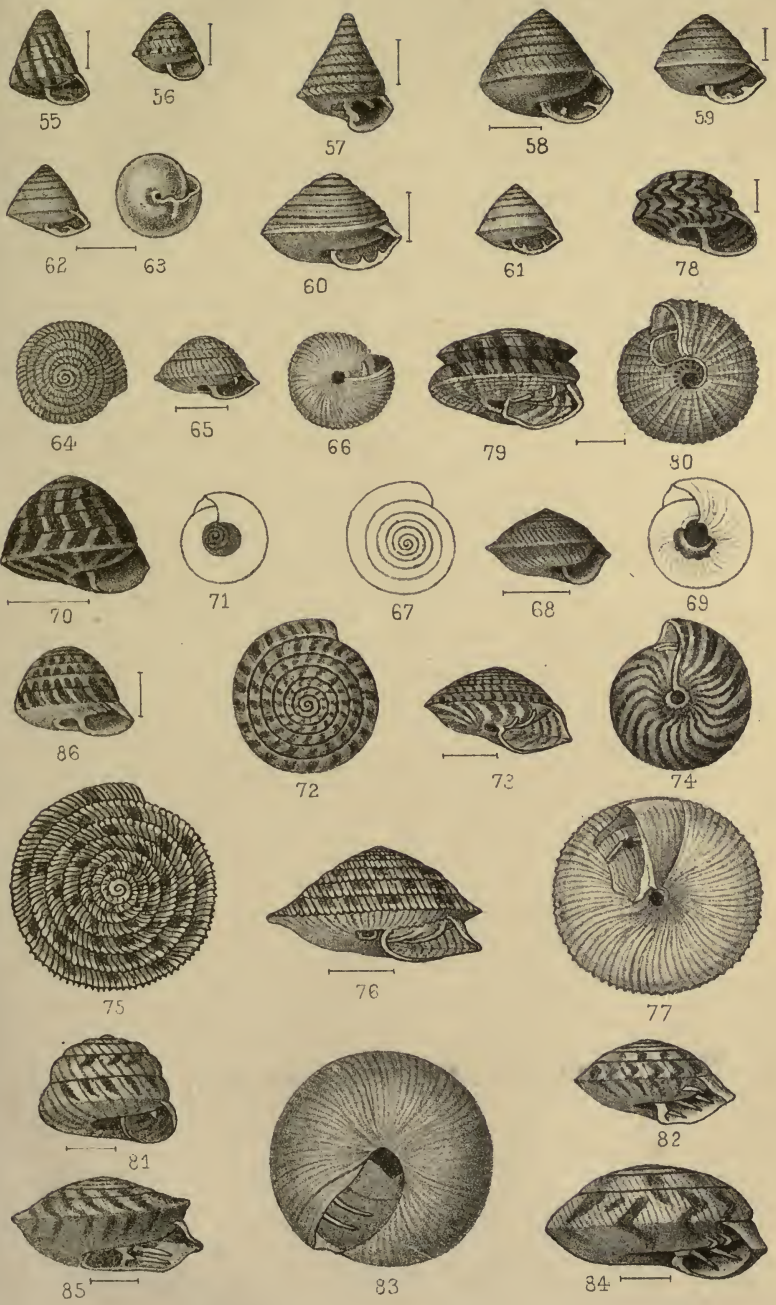
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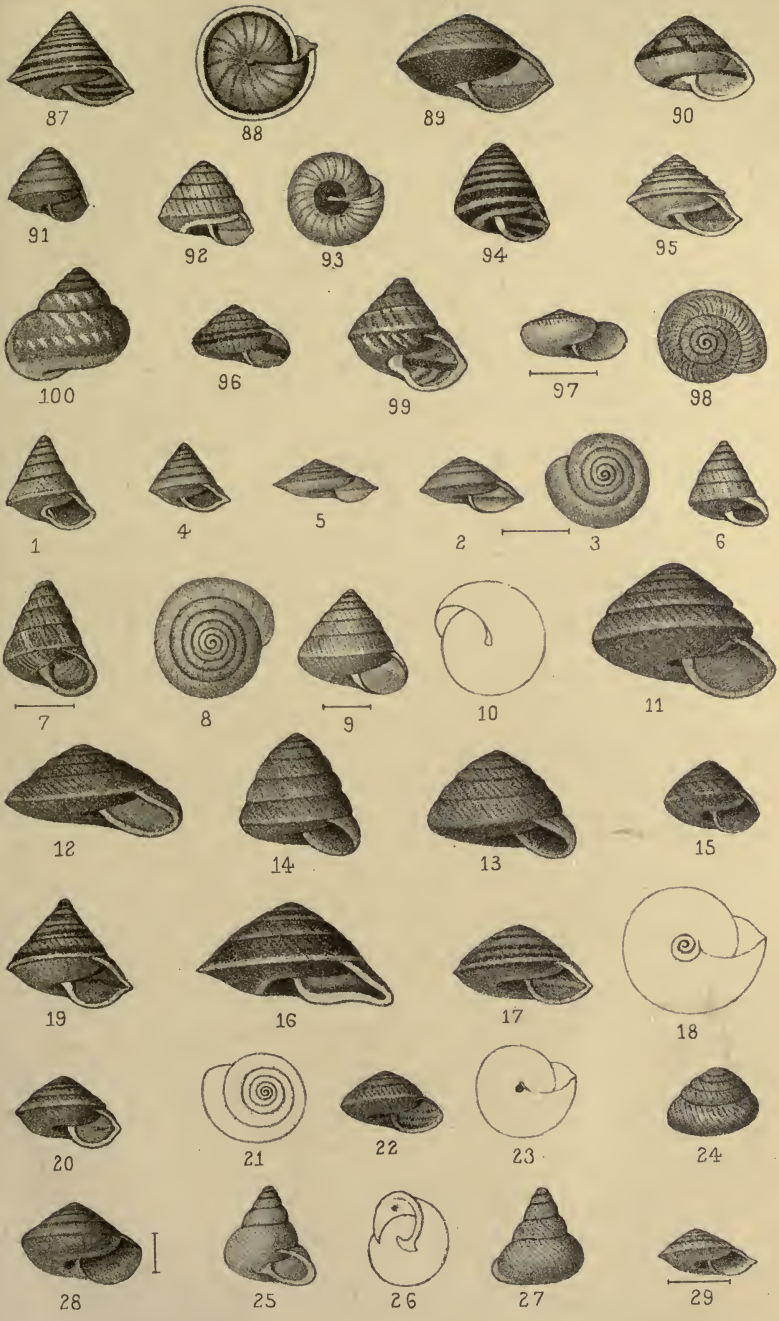
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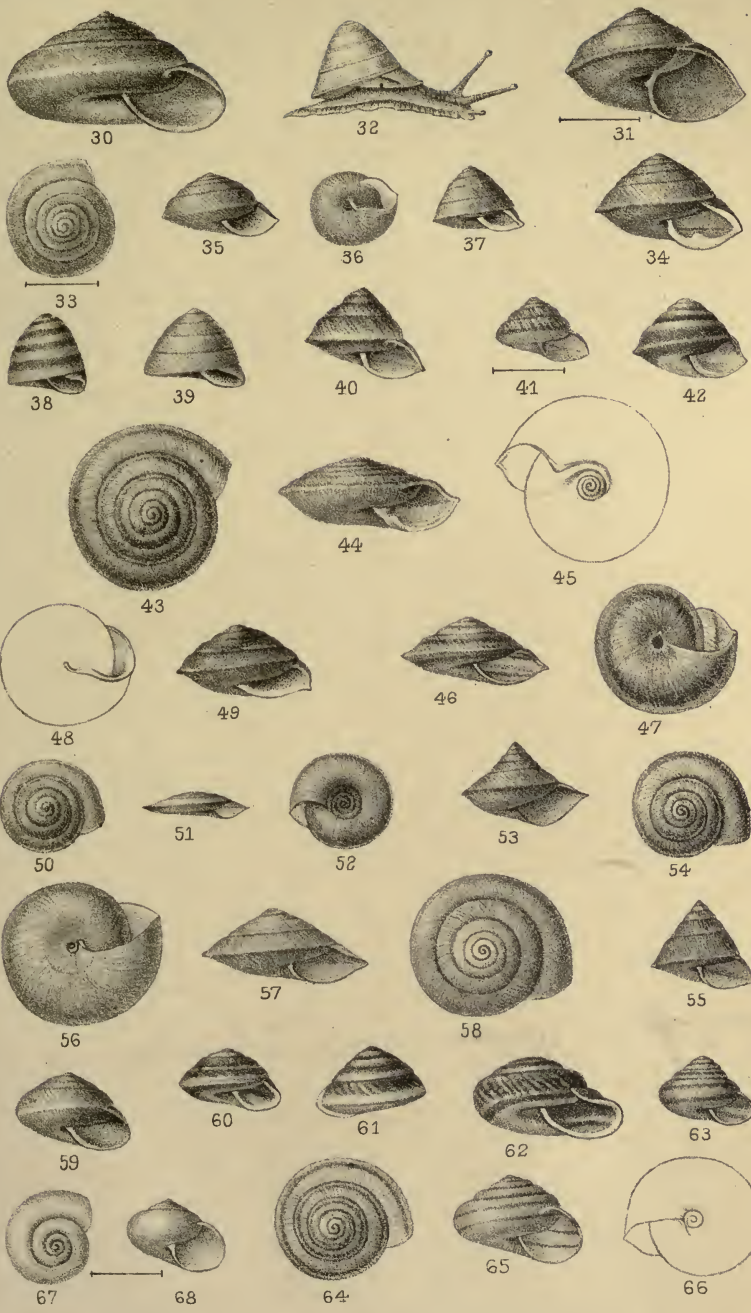
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above and below; aperture minutely seven-plicate, three equal ones on the parietal wall, and four smaller and palatal.

Diam. 3·3 mill.

*Mango, Fiji Is.*

H. Maupitiensis, Garrett. Pl. 12, figs. 27–29.

Narrowly, deeply umbilicated, thin, subpellucid, closely elevately striated, striæ finer below; yellowish brown, marked with dark chestnut tessellations, sometimes becoming zigzag stripes on the body-whorl, suture rather deep; whorls 6½, rounded, slowly increasing, the last one slanting from the shoulder towards the base; aperture with eight lamellæ, four palatal, one columellar and three parietal. Diam. 3 mill.

*Maupiti I., Society Is.*

H. De Gagei. Garrett.

Closely allied to *H. Maupitiensis*, but may be distinguished by its coarser rib-like striæ, more oblique aperture, smaller umbilicus and more depressed body-whorl. The palate has five and the parietal wall three revolving lamellæ; corneous or yellowish, tessellated and strigated with chestnut. Diam. 3 mill.

*Rurutu, Austral Is.*

Unfigured.

H. hystricelloides, Mousson. Pl. 12, fig. 30.

Narrowly umbilicated, striate-costulate, radiately marked with whitish and grayish corneous strigations, suture acutely impressed; whorls 5½, slowly increasing, subinflated, the last a little descending in front, rounded below; aperture six to eight-lamellate, of which three or four are parietal, the first and third larger, the fourth inconspicuous, three to five palatal, the middle ones largest, the first and last (columellar) smaller.

Diam. 4·25 mill.

*Ins. Upolu.*

H. Graffei, Mousson. Pl. 12, fig. 31.

Moderately umbilicated, rather thin, acutely biarcuately costulate-striate, grayish, with zigzag chestnut strigations; whorls 5, slowly increasing, convex, a little tumid towards the suture, the last not descending, rounded below; aperture with seven lamellæ, two on the middle of the parietal wall, and five palatal, whereof the first is smaller. Diam. 5·2 mill.

*Ins. Upolu.*

H. CONSOBRINA, Garrett. Pl. 12, figs. 43–45.

Rather widely umbilicated, thin, with crowded, fine, nearly straight membranous riblets; yellowish horn-color, tessellated and striped with reddish brown, suture channeled; whorls 6, very narrow, convex, subangulate next the suture, slowly increasing, the last not deflected; parietal region with four (very rarely three), palate with from seven to nine laminæ, columella with or without one. Diam. 3 mill.

*Huaheine, Society Is.*

H. SUBTILIS, Garrett. Pl. 12, figs. 46–48.

Moderately umbilicated, thin, yellowish corneous, tessellated and zigzagged with chestnut, with very thin, not crowded, subbiarcuate riblets, suture channeled; whorls 5, narrow, rounded, subangulate near the suture, slowly increasing, periphery rounded, base convex; parietal wall with two, palate with four (rarely three or five) laminæ. Diam. 3 mill.

*Huaheine Isl.*

H. PUNCTIPERFORATA, Garrett. Pl. 12, figs. 49–51.

Narrowly umbilicated, thin, corneous, tessellated with chestnut, base corn-color, sometimes with chestnut radiations, striæ close-set, thin, rib-like, smaller and more crowded beneath, suture deep; whorls 6, narrow, slowly increasing, not descending in front; parietal region with two (rarely three), palate with four or five laminæ, one of them columellar; in addition there are parallel raised lines both on the wall of the aperture and palate. Diam. 3 mill.

*Moorea, Society Is.*

H. BORABORENSIS, Garrett. Pl. 12, figs. 52–54.

Widely umbilicated, thin, corneous, under a light brown epidermis, tessellated above with chestnut, with or without chestnut rays beneath, sculpture of crowded riblets, suture deep; whorls 7, convex, slowly increasing, the last with obtusely angulated periphery, base convex; parietal region with four, palate with five or six laminæ. Diam. 5 mill.

*Borabora Isl., Society Is.*

b. *Carinate Species.*

H. CRETACEA, Garrett. Pl. 11, figs. 98–100.

Very broadly umbilicated, rather solid, finely striated, whitish with small, irregular, scattered chestnut spots, suture linear;

whorls 6½–7, planulate, narrow, slowly increasing, the last two slightly concave, periphery carinate, base angulated; parietal wall with a single lamella, and another in the throat between the keel and basal angle. Diam. 6 mill.

*Borabora, Society Is.*

*H. ficta*, Garrett (not of Pease), is a synonym.

H. LAMELLOSA, Fér. Pl. 12, figs. 32–34.

Cylindrically, moderately umbilicated, thin, shining, glabrous, acutely carinated, yellowish, with chestnut flames and maculations; whorls 7, flat, base inflated, angulated around the umbilicus; aperture with two large parietal lamellæ, the others smaller—one columellar, four basal and one upper. Diam. 7·5 mill.

*Sandwich Islands.*

H. FRICKI, Pfr. Pl. 12, figs. 35, 36.

Widely umbilicated, rather thin, striate, yellowish corneous, with chestnut maculations and strigations, suture margined; whorls 7, plane or a little concave above, the last subdeflected, acutely carinated, a little tumid below; aperture with two long, parietal plications, none on the columella, four smaller ones on the base, and one superior. Diam. 8 mill.

*Sandwich Islands.*

Differs from *H. lamellosa* in sculpture, wider umbilicus, and want of the columellar lamella; Pease considered them identical.

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*Unfigured Species.*

H. CONSTRICTA, H. IRREGULARIS, H. LACERATA, of Semper.

*Ins. Palau.*

H. RUGATA, Pease. *Sandwich Islands.*

II. *Imperforate.*

H. OPARICA, Anton. Pl. 12, figs. 37–39.

Subimperforate, thin, costulate-striate, brownish, obsoletely maculated with chestnut; whorls 4½–5, narrow, slightly convex; aperture with three parietal and four basal lamellæ.

Diam. 3·5 mill.

*Ins. Opara.*

H. ROTULA, Hombr. et Jacq. Pl. 12, figs. 40–42.

Imperforate, smooth, light corneous, radiated with chestnut

above; whorls 4, moderately increasing, the last rounded, not descending; no teeth. Diam. 3·3 mill.

*Ins. Mangareva.*

Perhaps not adult. As there are no teeth, this can scarcely be considered a member of the group—where it is placed by Pfeiffer.

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H. IMPERFORATA, Pease. (Unfigured). *Ins. Aitutake.*

*H. Aitutakiana*, Mousson, is a synonym.

Subsection LAOMA, Gray, 1849.

H. LEIMONIAS, Gray. Pl. 13, fig. 55.

Subimperforate, somewhat solid, smooth, shining, pellucid, light corneous, maculated with chestnut; whorls 7, flattened, the last acutely carinated, base plane; aperture with one parietal lamella and two in the right margin. Diam. 2·3; alt. 2·7.

*New Zealand.*

H. PŒCILOSTICTA, Pfr. Pl. 13, fig. 56.

Perforate, thin, closely plicate, fulvous, maculated with chestnut, diaphanous, suture margined; whorls 5½, narrow, a little convex, the last carinate, base plane; columella with a single plication, aperture otherwise unarmed. Diam. 4 mill.

*New Zealand*

H. BILAMELLATA, Pfr. Pl. 13, fig. 57.

Narrowly umbilicated, thin, corneous, regularly plicate; whorls 9, carinated, carina exserted, acute, subaculeate, base slightly convex; aperture with a parietal and columellar lamella, the latter stronger. Diam. 4, alt. 4·5 mill.

*Ins. Opara.*

It is *Pitys Oparana*, Beck.

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H. MARINA, and H. NERISSA, Hutton (unfigured). *New Zealand.*

(ACTINARIA, Pfr., 1855.)

H. PIRRIEANA, Pfr. Pl. 13, fig. 58.

Perforate, thin, smooth, scarcely lightly striulate, pellucid, corneous, suture margined; whorls 7–8, slightly convex, very narrow, the last carinate, bidentate within the base.

Diam. 5 mill.

*Koondah Mts., India.*

H. BIDENTICULATA. Benson. Pl. 13, fig. 59.

Perforate, obsoletely radiately striate, whitish, suture impressed, whorls 6, narrow, convex, with two slightly elevated spiral lines above, the last whorl carinated, convex below; aperture with two minute distant basal teeth, the right one largest, near the margin.

Diam. 3 mill.

*Nilgherri Mts., India.*

H. DAGHOBA, W. and H. Blanford. Pl. 13, fig. 60.

Narrowly perforate, obliquely striated, spirally sulcate, carinated, suture impressed; whorls 7–8, slowly increasing, subconvex, the last not descending, carinate, base convex, smooth; peristome with two basal teeth. Diam. 6 mill.

*Patchamullies* and *Kalryenmullis Mts., India.*

H. DIPLODON, Benson. Pl. 13, fig. 61.

Perforate, thin, smooth, a little striulate, whitish under a corneous epidermis; whorls 6½, very slightly convex, the last acutely carinated, not descending in front, base somewhat convex, in front, near the periphery flattened-excavated, becoming suddenly more tumid in the middle; aperture with an obtuse subcolumellar tooth, and another sinuated, pliciform one. Diam. 6·5 mill.

*Teria Ghat, Khasi Mts.*

H. INGRAMI, Blanford. Pl. 13, figs. 62, 63.

Imperforate, thin, diaphanous, light corneous, very minutely, closely granulately decussate-striate; suture thread-margined; whorls 6½, flattened, periphery acutely carinated, not descending, compressed above and below the carina, base flattened, externally decussately striate, umbilical region impressed; aperture with two entering lamellæ on the base, the exterior one largest, with a third transverse lamella behind it, lip white, somewhat thickened. Diam. 6·25 mill.

*Pegu.*

Section LIBERA, Garrett, 1881.

So far as known this peculiar group, containing about a dozen species, is peculiar to the Society and Cook's Is.; in the former archipelago, they are confined to Tahiti and Moorea.

H. CAVERNULA, Hombr. et Jacq. Pl, 13, figs. 75–77.

Discoidal, whorls a little concave above, strongly costate, whitish, tessellated with chestnut; periphery acutely laminately carinated,

the edge often cut by the costulæ so as to be fimbriated, base flatly convex, nearly smooth, whitish, a little mottled with chestnut round the outer portion; aperture with one or two parietal lamellæ.

*Tahiti* (Jacq.), *Sandwich Is.* (Pease).

A very distinct species, erroneously referred by Garrett to the synonymy of *H. coarctata*. I have before me two trays of shells named *H. laminata*, Pease, from the "Sandwich Is.," one of them from the describer, which undoubtedly represent the same species.

H. FRATERCULA, Pease. Pl. 13, figs. 64–66.

Somewhat solid, yellowish, umbilicated, with scarcely oblique, close, rugose costulations; whorls 7, excavated in the middle, the last with acutely carinated periphery, base plano-convex, closely, finely radiately costulate; umbilicus cavernous, constricted above; lip with two (sometimes three), columella with one, parietal wall with one or two revolving lamellæ. Diam. 6 mill.

*Rarotonga.*

Described as *H. sculptilis*, Pease, preoccupied by Bland.

H. SUBCAVERNULA, Tryon. Pl. 13, figs. 67–69.

Umbilicated, somewhat solid, ashy or brownish corneous, here and there darker brown, often tessellated with brown above, obscurely radiated below; whorls 7, convex, the last acutely carinated, closely obliquely costulate, the interstices minutely striate; umbilicus deeply cavernous with contracted margin; aperture with two, rarely three remote lamellæ in the throat and two on the parietal region, columella uniplicate, sinuate. Diam. 6 mill.

*Rarotonga, Cook's Is.*

Described by Garrett as *H. cavernula*, preoccupied by Hombr. et Jacq.

H. TUMULOIDES, Garrett. Pl. 13, figs. 70, 71.

Rather thick, whitish to yellowish corneous, tessellated with chestnut above, radiately strigate below; whorls 7, plano-convex, the last angulated, periphery acutely carinated, obliquely striate, the striæ more distant and plicate in the upper whorls, suture linear, subcarinately margined, base plano-convex; umbilicus cavernous, constricted; aperture with two median approximate lamellæ in the throat, columella with a single plication, parietal region with a median lamella. Diam. 7 mill.

*Rarotonga, Cook's Is.*

H. JACQUINOTI, Pfr. Pl. 13, figs. 72–74.

Somewhat solid, acutely carinated, closely arcuately costate, variegated with white and brown, not shining; whorls 8, narrow, all carinated, carina exserted, toothed with decurrent ribs, base a little convex, radiately striate; umbilicus contracted by a lamina, wide within; aperture with two long parietal, one columellar, and three deep-seated basal lamellæ. Diam. 9 mill.

*Tahiti.*

It is *H. excavata*, Hombr. et Jacq., and possibly *H. bursatella*, var. B. Gould.

H. COARCTATA, Pfr. Pl. 13. figs. 78–80.

Distantly arcuately costate, slightly and finely spirally striate, brownish, tessellated with chestnut, not shining; whorls 8½, narrow, carinated, somewhat scalar, the last receding below the penultimate; base slightly convex, obsoletely radiately costate, more distinctly concentrically striate; umbilicus wide, contracted by a lamina above; aperture with two parietal lamella, one on the columella, one within the outer wall, and two on the margin of the base. Diam. 6·3 mill.

*Ins. Tahiti.*

*H. turricula*, Hombr. et Jacq. (figs. 79, 80), *H. streptaxon*, Reeve (fig. 78), and *H. bursatella*, Gld. (in part), are synonyms. *H. cavernula*, Hombr. et Jacq., is erroneously referred here by Garrett.

H. BURSATELLA, Gould. Pl. 13, fig. 86.

Solid, rough, carinated, closely arcuately costate above, marbled with white and chestnut color, not shining; whorls 9, very narrow, base plane, smoothish, angulated and contracted over the umbilicus; aperture 6–7 plicate, two of them parietal, one columellar and three or four basal. Diam. 7·6 mill.

*Ins. Tahiti* and *Eimeo.*

*H. turricula*, Hombr. et Jacq., has been erroneously referred here; it is a synonym of the preceding species.

H. RETUNSA, Pease. Pl. 13, fig. 81.

Tessellated with chestnut and white above, radiated with flexuous flames below; whorls 7, convex, obliquely radiately costulate, the riblets subdistant, flexuous, concentrically striated; umbilicus cavernous, constricted at the top; throat with two revolving lamellæ, one on the columella, one parietal. Diam. 4 mill.

*Tahiti.*

H. Heynemanni, Pfr. Pl. 13, fig. 82.

Somewhat solid, lightly striate, yellowish, maculated and flamed with chestnut; whorls 7, planulate, all carinated and exserted, the last compressly carinated, base a little convex, umbilicus ample, nearly closed above; aperture with two parietal, one columellar and three or four basal lamellæ. Diam. 5·5 mill.

*Tahiti.*

H. gregaria, Garrett. Pl. 13, figs. 83, 84.

Rather solid, not shining, closely, finely, slightly biarcuately costellate, more crowded on the base; whitish, tessellated, and rayed with chestnut; whorls 7, narrow, slowly increasing, periphery acutely carinated, base somewhat convex; apertural laminæ 5–6, two parietal, one columellar, two palatal, and one inconspicuous (or absent) above the keel. Diam. 7 mill.

*Moorea, Society Is.*

H. recedens, Garrett. Pl. 13, fig. 85.

Rather solid, not shining, with thin, crowded, rough striæ, finer and closer on the base, yellowish, tessellated and strigate with dark chestnut, or all chestnut; whorls 7, slightly convex, narrow, slowly increasing, last one carinated and decidedly deflected from the periphery of the penultinate; apertural laminæ 6, two parietal, the lower one deep-seated, a stout one on the columella, two on the palate and a less conspicuous one above the keel. Diam. 5·5 mill.

*Moorea, Society Is.*

Section Trochomorpha, Albers., 1850.

A. *Imperforate.*

H. conus, Phil. Pl. 14, figs. 87, 88.

Imperforate, acutely carinate, striulate, with about seven undulating impressed spiral lines above the periphery; fulvous chestnut, with white zones at the carina and suture, base shining; whorls 8, the apex globose, uncolored, the others flattened, base scarcely convex, umbilical region excavated, whorl not descending in front; columellar margin thickened, white. Diam. 12·5 mill.

*Java.*

H. Campbellii, Gray. Pl. 14, fig. 89.

Imperforate, convex, closely rugosely striate above, lightly decussated by spiral striæ, light brown, with a broad light band above the periphery; whorls 4½, a little flattened, the last angulated, base

smoothish; columella short, oblique, somewhat thickened.
Diam. 19 mill.

*Phillip Isl., Australia.*

Var. β. Shell fuscous above, chestnut below.

H. Stoddarti, Gray. Pl. 14, fig. 90.

Imperforate, solid, slightly rugose, a little shining; brown, with a light band, or yellowish, with a darker band; whorls 5, a little flattened, the last more convex, with angulated periphery.
Diam. 15 mill.

*Phillip Isl., Australia.*

H. alta, Pease. Pl. 14, fig. 91.

Imperforate, rather thin, yellowish, suture impressed; whorls 6, plano-convex, slightly longitudinally striate, periphery acutely angulated, base a little flattened. Diam. 10 mill.

*Ins. Ponape.*

H. rectangula, Pfr. Pl. 14, figs. 92–94.

Imperforate, solid, yellowish grey with or without chestnut bands, narrow sutural line and basal area; whorls 6–6½, a little convex, the last subrectangularly carinated, base somewhat flattened, subexcavated in the middle; columella thickened, callously subdentate. Diam. 13 mill.

*Marquisas Is.*

*H. hapa*, Hombr. et Jacq., is a synonym.

H. Lalannei, Gassies. Pl. 14, fig. 96.

Imperforate, rather solid, obliquely irregularly striate, somewhat shining, light yellowish, banded with chestnut at the carinated periphery; whorls 4½–5, slightly convex; regularly increasing, the last not descending, base subplanate, more shining; aperture cingulated with white within. Diam. 8·5 mill.

*Ins. Art, New Caledonia.*

H. pagodula, Pfr. Pl. 14, fig. 95.

Imperforate, somewhat solid, opaque, striulate and with obsolete impressed spiral lines, epidermis deciduous, fulvous; whorls 6½, the upper ones flat, the 3 last with subelevated compressed, acute carina, the last subreceding, base slightly convex. Diam. 15 mill.

*Hab. unknown.*

*Unfigured Species.*

H, Kjellerupii, Mörch. *Ins. Sambelong, Nicobar.*

H. subturritula, G. and H. Nevill. *Ins. Mahé, Seychelles.*

H. catinus, Pfr. *Admiralty Is.*

B. *Perforated to umbilicated.*

*a. Periphery carinated.*

H, chloroplax, Benson. Pl. 14, figs. 97, 98.

Perforate, thin, subplicately striated above, striulate below, very lightly decussated, translucent, scarcely polished, greenish corneous, suture impressed; whorls 5, slowly increasing, a little convex, the last angulated above at the periphery, convex below. Diam. 8 mill.

*Simla, Himalayas.*

H. Capitium, Benson. Pl. 14, figs. 99, 100.

Perforate, thin, striulate, not shining, diaphanous, brownish corneous, with opaque laciniated white strigations, suture impressed, margined; whorls 5½, slightly convex, the last scarcely descending in front, with a filiform compressed carina, base more convex; peristome thin, white, right margin shortly expanded, the basal subreflected, columella triangularly expanded, partly covering the perforation. Diam. 14 mill.

*Eastern India, Burmah, Siam.*

Var. Hariola, Benson. Fig. 100.

Periphery obtusely angulated; the white strigations form two wide bands.

Nevill refers this species to a section Ganesella.

H. Acris, Benson. Pl. 14, fig. 1.

Narrowly umbilicated, obliquely striulate and obsoletely granulose, very minutely spirally striated below, whitish, suture slightly impressed; whorls 6½, planulate, the last scarcely descending, periphery acutely carinated; peristome slightly expanded above and a little reflected below. Diam. 10 mill.

*Teria Ghât, Khasia Mts., India.*

*H. puellula*, Bens. MS., is a synonym. Nevill refers this and the following species to a section Trochomorphoides.

H. Brunii, Mörch. Pl. 14, fig. 6.

Scarcely perforated, yellowish rust color, light ashy towards the umbilicus, regularly remotely longitudinally striate; whorls 5, a

little convex, the last rounded, obsoletely carinated, not descending; lip white, tumid in the middle, reflected, columella sigmoid.

Diam. 8·5 mill.

*Ins. Little Nicobar.*

The type of the group *Liocystis*, Mörch.

H. GALEA, Benson. Pl. 14, fig. 4.

Scarcely perforated, obliquely striulate, decussated by very close granulose spiral striæ, suture slightly impressed, submargined; whorls 7, the last acutely carinate, not descending, planulate below, slightly excavated next the carina; whitish (decorticated).

Diam. 9 mill.

*Teria Ghât, Burmah.*

H. GALERUS, Benson. Pl. 14, figs. 2, 3.

Narrowly, deeply umbilicated, light corneous, very closely obliquely striate; decussated by slighter spiral striæ, suture impressed; whorls 5, slowly increasing, a little convex, the last acutely carinate, margined, base slightly convex, angulated obtusely around the umbilicus. Diam. 9 mill.

*Ceylon.*

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*Unfigured Species.*

H. TRIFILOSA, Pfr. *Ceylon.*

H. CARYX, Benson. *Phie Than, Tenasserim Valley.*

H. CEROCONUS, Pfr. *Ins. Labuan.*

H. GYSSERIANA, Pfr. Pl. 14, fig. 7.

Perforate, thin, irregularly striulate, diaphanous, corneous; whorls 6, somewhat flattened, the last acutely carinated below the middle, base a little convex; upper margin of peristome shortly expanded, basal reflected. Diam. 9 mill.

*Moluccas, Sumatra.*

The previously described *H. conulus*, Mart. (not Pease), from Sumatra is a synonym. Nevill refers this to *Trochomorphoides*.

H. ANGULATA, Issel. Pl. 14, figs. 8–10.

Covered perforate. fragile, translucent, yellowish corneous, closely lightly transversely striate, and slightly obliquely decussated, suture moderate; whorls 6½, a little convex, the last obtusely angulated, not descending in front. Diam. 4·5 mill.

*Sarawak, Borneo.*

H. TERNATANA, Guillou. Pl. 14, figs. 11–14.

Narrowly umbilicated or perforated, solid, obliquely striated, brownish, the carina lighter colored, base somewhat shining; whorls 7, the upper ones acutely carinated, the last obtusely angulated; peristome simple, thickened at the base. Diam. 20·5 mill.

*Moluccas.*

Var. MAJOR. More depressed, whorls 8½; diam. 23 mill.

Var. MINOR. More elate. Diam. 16 mill.

*H. Batchianensis*, Pfr. (fig. 11), is a synonym. The species varies greatly in form, as shown by my figures of several of the extremes.

H. MEMBRANICOSTA, Pfr. Pl. 14, fig. 15.

Moderately umbilicated, thin, membranously ribbed, slightly shining, brownish corneous; whorls 7, somewhat convex. slowly increasing, the last not descending, periphery carinate, base more convex. Diam. 11 mill.

*Solomon's Is.*

H. EXALTATA, Pfr. Pl. 14, fig. 19.

Perforate, rather thin, minutely decussated by oblique and spiral striæ, waxy, whitish, with a superior narrow chestnut band; whorls 7, scarcely convex, the last not descending, moderately convex below the peripheral carina. Diam. 15 mill.

*Solomon's Is.*

It is *H. Cleryi*, Reeve, not Recluz.

H. BELMOREI, Cox. Pl. 14, fig. 16.

Widely umbilicated, rather solid, opaque, slightly irregularly obliquely striated, dark chestnut color; whorls 6½, flat, suture indistinct, last whorl very acutely carinated, not depressed in front, base plane, roughly striate, excavated around the umbilicus. Diam. 1 inch.

*Solomon's Is.*

H. FATIGATA, Cox. Pl. 14, figs. 17, 18.

Deeply, widely umbilicated, roughly obliquely striate above, more finely below, light yellowish brown, base paler; whorls 6, flat, obliquely margined and pinched at the suture, periphery acutely, flatly carinated, shining below, excavated around the umbilicus. Diam. 18 mill.

*Solomon's Is.*

H. SCYTODES, Pfr. Pl. 14, fig. 20.

Moderately umbilicated, thinnish, slightly granularly rugose, scarcely shining, brownish corneous, with a chestnut sutural zone; whorls 6½, slightly convex, slowly increasing, the last with an acute chestnut carina on the periphery, scarcely descending in front, base convex, obsoletely compressed round the umbilicus. Diam. 14 mill.

*Solomon's Is.*

H. JUANITA, Angas. Pl. 15, fig. 30.

Widely, deeply umbilicated, rather thin, shining, with irregular, close, elevated striæ; dark chestnut, with a narrow yellowish green band at the periphery, and another, wider one around the umbilicus; whorls 6½, slightly convex, periphery angulated; lip white, slightly expanded. Diam. 12 mill.

*Solomon's Is.*

H. VIRGULATA, Sowb. Pl. 22, fig. 23.

Moderately umbilicated, with strong incremented striæ, slightly carinate at the periphery, brownish, with a chestnut peripheral band; whorls 5, a little convex; aperture widely lunar, banded within, lip slightly patulous, thickened within. Diam. 19 mill.

*Hab. unknown.*

The original figure in the "Zool. of Beechey's Voy." is evidently badly drawn, but whether Reeve's figure represents the same species must remain somewhat doubtful.

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*Unfigured Species.*

H. SERENA, Cox. *Solomon's Is.*

H. LE VIEUXI, G. and H. Nevill. *Ins. Mahé, Seychelles.*

H. PAGODULA, Semper. *Ins. Palau.*

H. OLEACINA, Semper. Pl. 14, figs. 21–23.

Narrowly umbilicated, solid, striated, shining, light corneous, suture plane, submargined; whorls 5½–6, slowly increasing, the last more convex above, not descending, obtusely carinated, base somewhat plane; lip and columella thickened. Diam. 15–18 mill.

*Nermalck, near Corore, and Peleliu.*

H. GOULDI, Pfr. Pl. 14, fig. 24.

Moderately umbilicated, rather thin, slightly striulate, scarcely shining, brownish; whorls 6, slightly convex, the last carinated, subrotund anteriorly, base flatter. Diam. 9·5 mill.

*Philippines.*

H. BERTINIANA, Canefri. Pl. 14, figs. 25–27.

Covered perforate, obliquely irregularly rugosely striate, diaphanous, white, under a thin light corneous epidermis; whorls 6, slightly convex, the last descending in front, periphery obtusely carinated, base convex. Diam. 11 mill.

*New Guinea.*

H. PACIFICA, Pfr. Pl. 14, fig. 28.

Perforate, thin, pellucid, striulate, corneous; whorls 6–6½, a little convex, the last acutely carinated, base a little more convex, smooth, shining. Diam. 5·5 mill.

*Cocos Isl., Pacific Ocean.*

H. SECURIFORMIS, Desh. Pl. 15, fig. 31.

Subperforate, thin, shining, smooth, acutely angulated at the periphery, greenish; whorls 4½, a little convex, rapidly enlarging, the last large, tumid, convex below. Diam. 10 mill.

*Hab. unknown.*

H. GONIOMPHALA, Pfr. Pl. 15, fig. 34.

Narrowly umbilicated, solid, obliquely rugulosely striated, fulvous, suture plane, margined; whorls 6½, flat, slowly enlarging, the last more convex above, not descending in front, periphery subcompressed and acutely carinated, base a little plane, angulated around the umbilicus; base of periphery callously thickened.

Diam. 20·5 mill.

*Ins. Ponape, Caroline Is.*

H. NIGRITELLA, Pfr, Pl. 15, figs. 35–37.

Moderately umbilicated, a little solid, brownish, under a blackish olivaceous epidermis; whorls 5½, nearly flat, slowly enlarging, periphery acutely carinated, base more convex. Diam. 14·5 mill.

*Ins. Ponape, Caroline Is.*

Var. OPPRESSA, Pease.

More depressed, light yellowish, with a brown sutural band, base brown, frequently with a marginal yellowish line. Diam. 13 mill.

H. CONTIGUA, Pease. Pl. 15, figs. 38, 39.

Narrowly umbilicated, solid, thick, thinly longitudinally striated, yellowish, sometimes with a wide chestnut band; whorls 6–7, convexly flattened, periphery acutely angulated, suture scarcely impressed, the base planulate or subconcave, lip thickened.

Diam. 9, alt. 10 mill.

*Ins. Ponape, Caroline Is.*

It is *H. congrua*, Pease, not Pfr.

H. TENTORIOLUM, Gould. Pl. 15, fig. 32.

Moderately umbilicated, obliquely finely striated, light greenish, with a white carina; whorls 6, flattened, periphery acutely angulated, base inclining towards the umbilicus. Diam. 10 mill.

*Ins. Upolu.*

H. TRANSARATA, Mousson. Pl. 15, fig. 41.

Narrowly umbilicated, irregularly rugosely or plicately striated, brownish corneus, the plications whitish, suture linear, lightly margined above; whorls 5, moderately enlarging, a little convex, the last not descending, with thread-like, acute carina, smoother and lighter colored below, slightly convex, sloping into the umbilicus.

Diam. 7 mill.

*Lomma-Lomma, Viti Islands.*

Var. $\beta$ is more depressed, light corneous, thinner, and unequally rugosely striated, umbilicus wider.

H. FESSONIA, Angas. Pl. 15, fig. 40.

Narrowly umbilicated, thin, closely irregularly plicate-striate, light brownish, with irregularly interrupted lighter, diaphanous strigations, suture pale thread-margined; whorls 6, a little convex, the last not descending, with white carina on the periphery, base flat, corneous, with a narrow, brown band at the carina. Diam. 9 mill.

*Kantavu; Viti Is.*

Perhaps = the preceding species.

H, ENTOMOSTOMA, Hombr. et Jacq. Pl. 15, figs. 43–45.

Narrowly umbilicated, striated above, greenish brown; whorls 6½, somewhat flattened, margined, the periphery acutely carinated, base more convex; columellar margin tuberculately thickened, dilated above. Diam. 1 inch.

*Ins. Hogoleu.*

Partakes of the characters of subsection Videna.

H. TROCHIFORMIS, Fer. Pl. 15, fig. 42.

Narrowly umbilicated, solid, obliquely rugosely striated, chestnut colored or brownish yellow, dark banded, carina yellowish; whorls 6, a little convex, periphery acutely carinated.

Diam. 16·5 mill.

*Ins. Raiatea, Tahaa, Taheiti, Moorea.*

*H. circumdata*, Muhlf., is a synonym.

H. SUBTROCHIFORMIS, Mousson. Pl. 15, figs. 46, 47.

Differs from the last species in being more discoidal, with more

acute carina, and narrower umbilicus, the irregular incremental striæ whitish, producing a greyish appearance.

*Samoan Is.*

*H. trochiformis*, Gould, not Fer., and *H. Eurydice*, Mousson, not Gould, are synonyms.

Var. ALBOSTRIATA, Mousson.

Spire brownish black, with imperfect transverse white strigations; base fulvous, with a brown peripheral zone.

*Ins. Kanathia.*

H. ACCURATA, Mousson. Pl. 15, fig. 55.

Narrowly umbilicated, subconcavely conical, strongly irregularly striated, violaceous green, suture linear, carinate margined; whorls 7, moderately enlarging, flat, the last not descending; periphery acutely compressed, carinated, white, base plane, yellowish at the abrupt umbilicus. Diam. 14 mill.

*Viti Levu, Viti Is.*

H. KÜSTERI, Pfr. Pl. 15, figs. 48, 49.

Subimperforate, solid, striated, chestnut colored, suture margined; whorls 6½, slightly convex, the last not descending, periphery carinated, base scarcely convex; base of peristome callously thickened, columella very short. Diam. 18 mill.

*Caroline Is.*

H. SOLARIUM, Quoy. Pl. 14, fig. 29; Pl. 15, fig. 33.

Umbilicated, striate, diaphanous, fulvous; whorls 7, a little exserted, flat, periphery carinate, base planulate, umbilical region angulated. Diam. 9 mill.

*New Ireland.*

H. INFRASTRIATA, Smith. Pl. 15, figs. 53, 54.

Narrowly perforate, thin, semitransparent, corneous, with fine growth lines and microscopic spiral striæ; whorls 6, slightly convex, the last acutely carinated. Diam. 15 mill.

*Dentrecasteaux Isl., Admiralty Group.*

H. SCULPTICARINA, Martens. Pl. 15, figs. 56–58.

Narrowly umbilicated, greyish yellow, closely radiately costulate above, carina compressed, spirally striate above and below, base radiately and spirally striate; whorls 6, scarcely convex.

Diam. 22 mill.

*Ins. Salanga.*

*Unfigured Species.*

H. SCIADIUM, Pfr. *New Zealand.*

H. HERMIA, Hutton. *New Zealand.*

H. SANSITUS, Cox. *Vanna Lava, Banks Group; Viti Levu, Viti Is.*

H. CONFERTA, Pfr. *Hab. unknown.*

H. CONCENTRICA, Le Guillou. *Ins. Vavao, Tonga Is.*

*b. Ecarinate species.*

H. YORKENSIS, Pfr. Pl. 15, fig, 59.

Subcovered perforate, thin, striæ capillary, waxy, reddish corneous, suture smooth, simple; whorls 5, slightly convex, moderately enlarging, the last not descending, periphery subangulated, base more shining, impressed in the middle; aperture reddish pearly.

Diam. 10 mill.

*Cape York, Australia.*

H. PARTUNGA, Angas. Pl. 15, figs. 60, 61.

Moderately, profoundly umbilicated, somewhat solid, obliquely striate, light corneous, with a broad dark chestnut band, suture narrowly margined; whorls 5, slightly convex, the last a little descending, the periphery rounded, base convex, brown, or widely banded with brown. Diam. 13 mill.

*Russell Isl., Solomon Archipelago.*

H. MELEAGRIS, Pfr. Pl. 15, fig. 62.

Moderately umbilicated, rather thin, somewhat remotely striated, slightly shining. dark chestnut color above with irregular yellowish maculations, and a light peripheral band, base light corneous; whorls 5½, slightly convex, the last a little descending, periphery rounded, base convex. Diam. 19 mill.

*Guadalcanar, Solomon's Is.*

According to Mr. E. A. Smith H. sebacea, Pfr. (= H. cerealis, Cox = H. Thorpeiana, Brazier), is a pale variety of this species.

H. SAMOA, Hombr. et Jacq. Pl. 15, figs. 64–66.

Moderately umbilicated, striulate, yellowish, bilineated with brown; whorls 5½, convex, the last subangulated, scarcely descending, base convex. Diam. 18 mill.

*Ins. Upolu.*

H. TUBER, Mousson. Pl. 15, fig. 63.

Narrowly perforate, striate, waxy, yellowish corneous, narrowly bifasciate, suture simple, impressed; whorls 5½, regularly enlarging,

convex, the last not descending, periphery rounded, scarcely obtusely subangulated, base convex; peristome sublabiate within, somewhat thickened at the base. Diam. 12·5 mill.

*Ins. Upolu.*

Subsection VIDENA, H. and A. Adams, 1852.

H. PLANORBIS, Lesson. Pl. 16, figs. 78–82.

Widely umbilicated, thin, fragile, yellowish, marbled with olive above; whorls 5, the last acutely carinated. Diam. 15 mill.

*Sumatra, Java, Borneo, Celebes, Ternate,* etc.

Var. APPROPINQUATA, Mart. Figs. 80–82.

Distinctly spirally striated above and below.

Var. LESSONII, Mart.

Slightly spirally striate below only.

Var. JAVANICA, Mousson.

Spiral striæ obsolete.

Var. NUMMUS, Issel.

A little smaller, depressed, widely umbilicated, obliquely striulate, whorls scarcely planulate, suture margined. Diam. 8–10 mill.

H. PAVIEI, Morlet. Pl. 14, fig. 5.

Widely umbilicated, thin, corneous, radiately thinly striate, with some spiral lines at the base of each whorl; whorls 7, a little convex, the last acutely carinated, convex below. Diam. 14 mill.

*Cambodia.*

H. LOMONTI, Brazier. Pl. 15, figs. 50–52.

Widely umbilicated, thin, pellucid, light reddish corneous, darker banded on the carina, suture narrowly margined; whorls 5½, the last acutely carinated. Diam. 12·5 mill.

*New Guinea.*

H. BICOLOR, Martens. Pl. 16, figs. 83–85.

Moderately umbilicated, striulate, shining with fine spiral lines above; chestnut color, with a sutural zone, carina and umbilical region whitish; whorls 5½–6, slightly convex, the last with carinated periphery, not descending in front, base subangulated at the umbilicus. Diam. 13 mill.

*Sumatra, Borneo.*

H. ZOLLINGERI, Pfr. Pl. 16, fig. 86.

Moderately umbilicated, thin, striated, chestnut color, variegated

with pale markings, diaphanous, a little shining; whorls 5, scarcely convex, the last not descending, acutely carinated, base somewhat convex. Diam. 17 mill.

*Java.*

H. CANTORIANA, Benson. Pl. 16, figs. 87–89.

Moderately umbilicated, thin, obliquely subarcuately striate, smoother below, decussated by remote incised spiral lines, brownish corneous, translucent, a little shining, suture submargined; whorls 5½, a little convex, the last somewhat obtusely carinated, base convex. Diam. 10 mill.

*Pulo Penang.*

H. TRICOLOR, Martens. Pl. 16, figs. 90–92.

Perspectively umbilicated, obliquely striated, slightly shining, corneous green above, with a rather broad chestnut band above the carina, carina itself white, base brownish; whorls 5½, the last descending below the carina. Diam. 17·5 mill.

*Ins. Buru, Moluccas.*

H. LARDEA, Martens. Pl. 16, figs. 93–95.

Moderately umbilicated, striulate, slightly shining, light corneous yellow; whorls 5, scarcely convex, the last not descending, acutely carinated; peristome white-lipped within. Diam. 14 mill.

*Ins. Ceram, Moluccas.*

Is *H. Zollingeri*, Mousson, not Pfr.

H. GORONTALENSIS, Martens. Pl. 16, figs. 96–98.

Somewhat widely umbilicated, striulate, shining, thin, brownish; whorls 5, scarcely convex, the last not deflected, acutely carinated, base convex. Diam. 16 mill.

*Celebes.*

H. TIMORENSIS, Martens. Pl. 16, figs. 99–1.

Perspectively umbilicated, distinctly arcuately striated, a little shining, fulvous corneous; whorls 6, the last very slightly descend ing in front. Diam. 16·5 mill.

*Ins. Timor, Penang.*

H. HARTMANNI, Pfr. Pl. 16, fig. 2.

Widely umbilicated, distinctly arcuately striated, fuscous, suture linear; whorls 6, planulate, last not descending, periphery acutely carinated, base somewhat convex. Diam. 26 mill.

*Ins. Morotai, near Halmahera*

H. Billeana, Mörch (unfigured). *Nicobar Is.*

H. sulcipes, Mörch (unfigured). " "

H. Sanis, Benson. Pl. 16, figs. 3, 4.

Moderately umbilicated, obliquely subarcuately striulate, subgranose, corneous, suture very slightly impressed, margined; whorls 5½, subplanulate, the periphery with a compressed carina, a little more convex below. Diam. 11 mill.

*Port Blair, Andaman I.*

H. Castra, Benson. Pl. 16, figs. 5–7.

Moderately umbilicated, thin, obliquely sharply striulate, corneous, suture margined; whorls 5½, planulate, the last very acutely carinated, somewhat plane below. Diam. 12 mill.

*Darjiling, Sikkim Himalayas.*

H. percompressa, Blanford. Pl. 16, figs. 8–10.

Openly umbilicated, thin, corneous, shining, obliquely arcuately striate, suture margined; whorls 5, convex, periphery very acutely carinated, base a little tumid around the umbilicus. Diam. 12 mill.

*Bhamo, Ava.*

H. benigna, Pfr. Pl. 16, figs. 11, 12.

Widely umbilicated, rugosely striated, decussated by very close minute spiral striæ, pellucid, light cinnamon color, suture margined; whorls 6, scarcely convex, slowly enlarging, periphery acutely carinated, above the carina slightly channeled, base more convex. Diam. 32·5 mill.

*Lao Mts., Cambodia.*

H. Saigonensis, Crosse. Pl. 17, figs. 13, 14.

Widely umbilicated, thin, scarcely obliquely striulate, a little shining, corneous, suture margined; whorls 6, scarcely convex, the last not descending, with acute carina, base shining, more convex. Diam. 11 mill.

*Saigon and Poulo-Condor I., Cochin China.*

H. Shermani, Pfr. Pl. 17, fig. 15.

Rather widely umbilicated, somewhat solid, obliquely striated and slightly granular, reddish brown, suture margined; whorls 7, slowly enlarging, somewhat flattened, the last not descending, acutely carinated, base more convex. Diam. 18 mill.

*Ins. Formosa.*

H. conomphala, Pfr. Pl. 17, fig. 16.

Moderately umbilicated, thin, scarcely striulate, light fulvous with a brown band above and below, suture linear; whorls 4,

rapidly enlarging, the last not descending, carina very acute, base scarcely more convex. Diam. 26 mill.

*Philippines.*

H. METCALFEI, Pfr. Pl. 17, figs. 17–23.

Widely umbilicated, striulate, light or reddish corneous, often with a chestnut band next the acute white carina; whorls 6, scarcely convex, a little more so beneath the carina. Diam. 21 mill.

*Philippines.*

*H. solarioides*, Reeve, is a synonym.

Var. $\beta$ minor (figs. 20, 21). Yellowish, with a narrow dark chestnut band next the carina. Diam. 17 mill.

*H. Boholensis* (unfigured) is probably a synonym.

Var. $\gamma$ unicolor, Semper (figs. 22, 23). Brownish corneous, without band. Diam. 15 mill.

H. EXCLUSA, Fer. Pl. 17, fig. 24.

Narrowly umbilicated, striated, marbled, with two or three red bands; whorls 5, the last excavated round the umbilicus.

Diam. 20 mill.

*New Guinea, Vanikoro.*

*H. Vahine*, Jacq., is a probable synonym.

H. ACUTIMARGO, Pfr. Pl. 17, figs. 25–27.

Moderately umbilicated, thin, pellucid, obsoletely concentrically striated above, light corneous; whorls 6, slowly enlarging, base convex. Diam. 16 mill.

*Isle of Negros, Philippines.*

H. RADULA, Pfr. Pl. 17, figs. 28–30.

Moderately umbilicated, a little solid, with close incremental striæ, and rough, acute, prominent concentric lines; whorls 6, a little convex, slowly increasing, base inflated, closely radiately costulate-striate. Diam. 21 mill.

*Ins. Luzon, Philippines.*

H. STRIGILIS, Pfr. Pl. 17, figs. 31, 32.

Moderately cylindrically umbilicated, thin, pellucid, light corneous, closely costulate-striated above, reticulated by concentric elevated lines, base more convex, smooth, shining; whorls 6, narrow, scarcely convex above. Diam. 12 mill.

*Ins. Negros, Philippines.*

H. ALBOCINCTA, Pfr. Pl. 17, fig. 36.

Moderately umbilicated, rather thin, regularly closely striate above, waxy, fulvous-corneous; whorls 5½, convex, peripheral carina white, base smoothish, with slight concentric lines.

Diam. 11 mill.

*Ins. Negros, Philippines.*

Is *H. planorbis.* var. of Reeve.

H. BECKIANA, Pfr. Pl. 17, figs. 33–35.

Rather widely umbilicated, thin, obliquely striate, brownish, scarcely shining, suture linear; whorls 6, somewhat flattened, the last deflected, periphery angulated, the angle becoming obsolete at the aperture, base flattened. Diam. 22 mill.

*Ins. Luzon, Philippines.*

Var. KIERULFII, Mörch. Fig. 35.

Shell more solid, spire higher, whorls narrower, carina obtuse, umbilicus much smaller, last whorl with slight close longitudinal striæ, peristome thicker. Diam. 18 mill.

*Ins. Marinduque, Philippines.*

H. CURVILABRUM, Ads. and Reeve. Pl. 17, fig. 37.

Moderately umbilicated, solid, striate, chestnut color, with a yellow band above the carina; whorls 5, somewhat flattened, the last not descending, periphery acutely carinated, base scarcely more convex; aperture livid, peristome slightly callous. Diam. 13·5 mill.

*Philippines.*

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*Unfigured Species.*

H. INFANDA, Semper. *Ins. Luzon, Philippines.*

H. SPLENDENS, Semper. *Ins. Zebu, Philippines.*

H. ELECTRA, Semper. *Ins. Palau, Peleliu,* etc.

H. LIZARDENSIS, Pfr. Pl. 17, figs. 38, 39.

Moderately umbilicated, solid, closely costulate-striate, with a thread-like lira next the carina, wax color, suture carinately exserted; whorls somewhat flattened, very slowly increasing, the base a little convex, rudely striated. Diam. 7·5 mill.

*Lizard Isl., Australia.*

H. MORETONENSIS, Pfr. Pl. 17, fig. 40.

Perforate, thin, arcuately plicate above, shining, brownish, smoothish and whitish below, suture simple, impressed; whorls 5½,

slightly convex, slowly increasing, the last not descending, periphery rather acutely carinated, base convex; aperture pearly within. Diam. 19 mill.

*Moreton Bay, Australia.*

H. HAMILTONI, Cox. Pl. 16, figs. 69, 70.

Moderately umbilicated, thin, closely subarcuately costulate, the interstices very narrrowly thread-striate, decussated by slight, very minute spiral lines, appearing a little granular, not shining, light brownish corneous, suture impressed; whorls 5, rapidly increasing, plano-convex, the last subinflated, the last rounded, not descending. Diam. 13 mill.

*Tasmania.*

Evidently not a member of this group—where it is placed by Pfeiffer.

H. BISULCATA, Pfr. Pl. 17, figs. 41, 42.

Widely umbilicated, somewhat solid, spirally and very minutely obliquely striated, shining, yellowish chestnut, suture impressed; whorls 6½, a little convex, the last much wider, periphery obsoletely angulated, not descending in front, base plane, a little impressed and sulcate in the middle, subcompressed around the umbilicus. Diam. 29 mill.

*Hab. unknown.*

Described as Tasmanian, but Mr. Petterd writes that it is unknown there (Jour. of Conch., ii, 95), unless it be possibly a monstrosity of *H. Launcestonensis*, Reeve. Pfeiffer adds to his description the observation that the specimen has a series of callous nodes within the aperture, corresponding with the basal sulcus.

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*Unfigured Species.*

H. BELLENGERENSIS, Cox. *Bellenger River, Australia.*

H. BELLENGENENSIS, Brazier. *Bellengen River,* "

The names are slightly diverse, but evidently refer to the same locality; the descriptions and dimensions differ.

H. HOOKERIANA, Johnston. *Tasmania.*

H. TRUCANINI and H. JUNGERMANNIÆ, Petterd. *Tasmania.*

H. NEGLECTA, Brazier. *Tasmania.*

H. SERRATA, H. Adams. Pl. 17, figs. 43, 44.

Widely, profoundly umbilicated, thin, subpellucid, slightly shining, with elevated liræ, light yellowish, suture serrated; whorls

6, a little convex, the last with serrated carina, base rounded about the umbilicus. Diam. 6·5 mill.

*Silhouette Isl., Seychelles.*

H. APIA, Jacquinot. Pl. 17, figs. 45, 46.

Moderately umbilicated, somewhat solid, lightly striate, light fulvous, with or without two chestnut bands, suture narrowly margined; whorls 5½, scarcely convex, the last not descending, acutely carinated, base slightly convex, impressly lineated towards the carina. Diam. 17 mill.

*New Hebrides.*

H. EUDORA, Angas. Pl. 17, figs. 47, 48.

Rather widely, deeply umbilicated, somewhat solid, irregularly, obliquely, closely and sharply striate, light chestnut colored; whorls 6½, a little convex, the last with carinated periphery, not descending, base convex; aperture violaceous, peristome white.

Diam. 23 mill.

*New Georgia.*

H. SEMICONVEXA, Pfr. Pl. 17, fig. 49.

Moderately umbilicated, rather thin, minutely striated, waxy shining, chestnut colored, suture impressed, distinctly margined; whorls 4½, a little convex, the last not descending, periphery with compressed carina, base inflated; aperture bluish. Diam. 14 mill.

*Solomon's Is.*

H. MATURA, Pfeiffer. Pl. 17, fig. 50.

Rather widely umbilicated, thinnish, striulate, dark chestnut colored, suture carinated; whorls 5½, hardly convex, the last slightly deflected in front, peripheral carina acute, base a little convex, obsoletely angulated around the umbilicus; lip white, widely thickened within the base, almost dentate. Diam. 20 mill.

*Solomon's Is.*

H. RHODA, Angas. Pl. 17, figs. 51, 52.

Moderately, deeply umbilicated, rather solid, finely, obliquely, irregularly striated, fulvous brown, with pale, diaphanous, oblique stripe-like spots, a suffused brown band below the suture, a darker, narrower one above it, and a narrow dark band on either side of the keeled periphery; whorls 6, suture narrowly margined, last whorl not descending; lip white, slightly expanded and subreflexed, basal portion a little thickened. Diam. 20 mill.

*San Christoval, Solomon's Is.*

H. DEIOPEIA, Angas. Pl. 17, figs. 53, 54.

Profoundly umbilicated, rather thin, lightly, irregularly, obliquely striated, suture narrowly margined; whorls 6, slightly convex, the upper ones brownish, the last blackish, with oblique light, diaphanous strigations, not descending, carinate, base subplanate; lip light corneous, margins approaching, the basal margin a little thickened, sinuous and subreflected. Diam. 8 mill.

*Solomon's Is.*

H. MERZIANA, Pfr. Pl. 18, fig. 55.

Rather widely umbilicated, somewhat thin, slightly rugulosely striated above, brownish, strigated and marbled with yellowish, suture impressed, margined; whorls 5½, a little convex, the last acutely carinated, not descending in front, base flattened, minutely radiately striate, yellowish, with a chestnut band at the carina; aperture iridescent. Diam. 23 mill.

*San Christoval, Solomon's Is.*

H. SANCTÆ-ANNÆ, Smith. Pl. 18, figs. 56–58.

Narrowly, deeply umbilicated, acutely keeled, light yellowish brown, sometimes with a few pale radiating streaks on the upper surface, with oblique growth-lines; whorls 5, rather slowly increasing, slightly convex, depressed and margined above the suture, last whorl not descending, compressed at the keel; aperture flesh-tinted, basal margin a little thickened, periphery with a thin callus. Diam. 17 mill.

*Santa Anna, Solomon's Islands.*

H. XIPHIAS, Pfr. Pl. 18, figs. 59–61.

Rather widely umbilicated, somewhat thin, obliquely striated, whitish corneous, with four narrow chestnut bands, carina white, suture carinated; whorls 5, slightly convex, slowly enlarging, the last not descending, acutely carinated; base of aperture nodulously callous. Diam. 18 mill.

*Admiralty Islands.*

Var. β. A little smaller, brownish, bands obsolete.

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*Unfigured Species.*

H. PAPUA, Lesson. *New Guinea.*

H. GASSIESI, Pfr. *New Hebrides.*

H. ZENOBIA, Pfr. *New Georgia.*

H. Howinsulæ, Cox. *Lord Howe's Isl.*

H. crustulum, Cox. *Solomon's Is.*

H. Crouanii, Le Guillou. *Solomon's Is.*

H. Henschei, Pfr. *Solomon's Is.*

H. Navigatorum, Pfr. Pl. 18, fig. 62.

Moderately umbilicated, rather solid, obliquely striated, reddish grey, under a shining purplish brown epidermis, suture margined; whorls 5, a little convex, gradually enlarging, the last not descending, with compressed peripheral carina, base more convex.

Diam. 18·5 mill.

*Navigator's Is.*

H. luteo-cornea, Pfr. Pl. 18, fig. 63.

Somewhat narrowly umbilicated, solid, thread-striate, waxy, yellowish corneous, suture impressed; whorls 5, convex, slowly increasing, the last not descending in front, periphery angulated, base subconvex; aperture whitish. Diam. 18 mill.

*Navigator's Is.*

H. approximata, Guillou. Pl. 18, figs. 64–67.

Umbilicated, rather solid, striulate, very obscurely granular, not shining, brownish, variegated with ashy yellow, suture linear; whorls 6–7, flattened, the last not descending, acutely carinated, carina separated from the scarcely convex base by an impressed line; base of peristome callously thickened. Diam. 14·5 mill.

*Caroline Is.*

Eichler (Sitzb. Berlin, 144, 1880) has recently called attention to discrepancies between Guillou's description of this species and the shell identified with it by Reeve, Pfeiffer, Küster, etc.

Var. marmorosa, Hombr. et Jacq. Figs. 66, 67.

Smaller, lighter colored, similarly variegated, carina less acute, occasionally margined by chestnut bands. Diam. 14 mill.

H. Eurydice, Gould. Pl. 18, figs. 68–70.

Widely, deeply umbilicated, thin, light greenish with chestnut colored revolving lines above and below; whorls 5–6, scarcely convex, the last very acutely carinated, base planulate. Diam. 16 mill.

*Tonga Tabou, Vavao.*

H. TUMULUS, Gould. Pl. 18, figs. 71–73.

Moderately umbilicated, solid, roughly subobliquely striated, yellowish; whorls 6–7, a little convex, with angulated periphery, compressed towards the aperture. Diam. 10 mill.

*Viti Is.*

H. ABROCHROA, Crosse. Pl. 18, figs. 74, 75.

Very widely umbilicated, thin, diaphanous, a little shining, smoothish, scarcely obliquely striulate, yellowish corneous, suture margined; whorls 5, moderately increasing, the last not descending, very acutely carinated, base somewhat convex, angulated around the umbilicus. Diam. 10 mill.

*Ins. Viti-Levu.*

Var. PSEUDOPLANORBIS, Mousson.

Spire higher, base more flattened and umbilicus narrower.

H. CRESSIDA, Gould. Pl. 18, figs. 76–78.

Widely, deeply umbilicated, solid, closely, sharply striated, shining, with coalescing fasciations of chestnut and yellowish green; whorls 5, scarcely convex, the last acutely carinated, base subplanulate. Diam. 17·5 mill.

*Ins. Samoa, Tahiti, Raiatea.*

H. PALLENS, Pease. Pl. 18, fig. 79.

Umbilicus narrow, shell rather solid, obliquely roughly striated, scarcely shining, yellowish white, with two submedian reddish chestnut bands, the lower one wider, suture with narrow margin; whorls 6, slightly convex, slowly increasing, the last not deflected in front, the acute keel whitish. Diam. 16 mill.

*Tahiti* and *Moorea, Society Islands.*

Pease described it as a variety of H. trochiformis, Fer. Garrett considers it distinct (Jour. Philad. Acad., ix, 25). Varieties have wide median bands, or pale honey yellow with narrow, often marginal bands, or uniform whitish or yellowish-white, or dark chestnut color, with white keel and suture.

H. SWAINSONI. Pfr. Pl. 18, fig. 80.

Moderately umbilicated, thin, pellucid, subarcuately rugosely striated, greenish fulvous, with two chestnut lines; whorls 5, depressed, the last acutely carinated. Diam. 16 mill.

*Tahiti; Peleliu.*

*H. exclusa, H. scuta* and *H. lenta*, Pease, are synonyms, the two latter are MSS. names.

H. ASSIMILIS, Garrett. Pl. 18, fig. 84.

Moderately umbilicated, rather solid, subpellucid, finely obliquely striate, greenish horn color with two narrow chestnut bands, suture with a narrow pale margin; whorls 5½–6, upper ones convex, lower ones subplanulate, narrow, slowly increasing, last one with compressed, rugose peripheral carina. Diam. 15 mill.

*Huahine, Society Islands.*

Smaller with more flattened whorls and more excavated umbilical region than *H. pallens;* the bands *always* narrow, and differing in color. The obliquely arched columella will separate it from *H. trochiformis.*

H. LATIMARGINATA, Smith. Pl. 18, figs. 81–83.

Deeply, narrowly umbilicated, dull pale brownish; whorls 5, slowly increasing, the last broadly marginate above the suture, with oblique growth-lines, periphery sharply carinated. Diam. 15 mill.

*Viti Islands.*

H. TAVINNIENSIS, Garrett. Pl. 18, fig. 85.

Rather widely perspectively umbilicated, somewhat thin, subpellucid, a little shining, obliquely striated; brownish yellow, with narrow chestnut bands above and below, suture white-margined, carina white; whorls 5, the last not descending, acutely carinated. Diam. 17 mill.

*Tavinni Isl., Viti Group.*

H. TROILUS, Gould. Pl. 18, figs. 89, 90.

Rather widely umbilicated, solid, closely rugosely striated, shining, chestnut-fulvous or yellowish, bifasciate with chestnut, suture margined; whorls 5½, convex, moderately increasing, the last not descending, base slightly convex, with slight spiral lines; aperture pearly within.

*Ins. Samoa.*

H. LÜDERSI, Pfr.

Rather narrowly umbilicated, somewhat thin, obliquely striulate, corneous white, with narrow, equal, chestnut bands, suture white-margined; whorls 5½, scarcely convex, slowly increasing, the last not descending, periphery with an acute white carina, base slightly convex, shining. Diam. 19 mill.

*Ins. Ovalan, Viti Group.*

Var. CORALLINA, Mousson.

Shell smaller, thinnish, carina more acute, light colored without or with one or two bands. Diam. 13 mill.

Neither type nor variety have been figured.

H. RUDIUSCULA, Pfr. Pl. 18, fig. 86.

Widely, perspectively umbilicated, thin, irregularly rudely rugose-striate, corneous brown; whorls 5, subplanulate, regularly increasing, the last not descending in front, periphery carinated.

Diam. 9 mill.

*Habitat unknown.*

H. HIDALGOIANA, Crosse. Pl. 18, figs. 87, 88.

Widely umbilicated, rather thin, subtranslucid, with rude, close impressed, oblique striæ, light cinnamon-chestnut color, suture margined; whorls 6, scarcely convex, slowly increasing, the last acutely carinated, base more convex, shining, obsoletely striate; aperture livid, subpearly. Diam. 25 mill.

*Hab. Oceania* (loc. unknown).

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*Unfigured Species.*

H. ALATA, Pfr. *Sandwich Islands.*

H. DEPRESSIFORMIS, Pease. *Tahiti.*

H. PROSTRATA, Pease. *Is. of Central Pacific.*

H. PLANISSIMA, Pfr. *Hab. unknown.*

H. GUILLOUI, Pfr. (*H. Valenciennesii*, Guill. not Eyd.). *Hab. unknown.*

Subsection THYSANOTA, Albers, 1860.

H. GUERINI, Pfr. Pl. 18, figs. 95, 96.

Very narrowly umbilicated, trochiform, epidermis rugose, brownish; whorls 7½, scarcely convex, periphery carinated, closely ciliated, base slightly convex. Diam. 16 mill.

*Nilgherri Mts., India.*

H. HYBA, Benson. Pl. 18, figs. 91, 92.

Deeply, somewhat openly umbilicated, subtrochiform, closely, roughly, obliquely plicate above, decussated by very fine spiral striæ, smoother and somewhat shining and very minutely granulated below, epidermis brownish corneous, suture lightly impressed, margined; whorls 6, slowly increasing, scarcely convex, the last not descending, peripheral carina margined. Diam. 14 mill.

*Sub-Himalayan Hills, India.*

*H. Tandianensis*, Theobald, has been considered a synonym, but Theobald says that the animal has a mucous pore with overhanging spur, which would make it a Zonites. It has not been figured (Jour. As. Soc. Beng., 46, 1881).

H. CRINIGERA, Benson. Pl. 18, figs. 93, 94.

Very narrowly umbilicated, somewhat thin, closely membranously costulate, corneous, suture margined, with a subexserted ciliate carina; whorls 6½, scarcely convex, slowly increasing, with one (rarely several) spiral liræ near the suture, last whorl not descending, periphery ciliately carinated, base a little more convex.

Diam. 12·5 mill.

*Nilgherri Mts., India.*

H. TABIDA, Pfr. Pl. 19, figs. 97, 98.

Very narrowly umbilicated, turbinate, somewhat solid, closely rugosely striated, epidermis deciduous, brownish; whorls 8, very slowly increasing, scarcely convex, the last not descending, periphery subangulated, convex above, flattened below. Diam. 17·5 mill.

*Nilgherri Mts., India.*

Like *H. Guerini* and *H. crinigera* but larger and not carinated.

H. MACROPLEURIS, Benson. Pl. 19, fig. 99.

Narrowly umbilicated, minutely, obliquely, arcuately striated, with remote, elevated curved ribs above, decorticated, whitish, a little shining, apex papillary, suture carinate-margined; whorls 8, a little convex, the last not descending, with a thread-like peripheral carina, base flattened, a little more convex towards the aperture, and angulate around the umbilicus. Diam. 5 mill.

*Near Darjiling, India.*

H. MERA, Reeve. Pl. 19, fig. 100.

Scarcely umbilicated, depressed orbicular, corneous, subdiaphanous, arcuately, rugosely striated, epidermis very thin, olivaceous; whorls 5, periphery acutely carinated, convexly tumid below. Diam. 27 mill.

*Hab. unknown.*

H. ALPHA, Pfr. Pl. 19, fig. 1.

Moderately umbilicated, obliquely striulate and distantly lamellately costate, variegated with yellowish and brownish strigations; whorls 5½, scarcely convex, the last not descending, acutely den-

tately ciliately carinate, base flattened, subangulated around the umbilicus. Diam. 4·3 mill.

*New Zealand.*

*H. stipulata*, Reeve, is a synonym.

H. BETA, Pfr. Pl. 19, fig. 2.

Narrowly umbilicated, thin, arcuately plicate, fulvous, with wide chestnut maculations, suture margined; whorls 7, the last subreceding, not descending, carina ciliated. Diam. 3·3 mill.

*New Zealand.*

*H. barbatula*, Reeve, is a synonym.

Notwithstanding differences of size and proportions, number of whorls, etc., Hutton unites this species to the foregoing: they constitute his genus THERA.

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H. CORYS, Benson (unfigured). *Darjiling, India.*

Subsection PARARHYTIDA, Ancey.

H. DICTYODES, Pfr. Pl. 19, fig. 3.

Narrowly umbilicated, obliquely plicately striate, rather thin, diaphanous, light corneous, reticulated finely with brown, with chestnut maculations at the suture and carina; whorls 7, scarcely convex, the last not descending, periphery acutely carinate, not hairy. Diam. 27 mill.

*New Caledonia.*

Var. MAJOR. Whorls 7½, diam. 35·5 mill.

H. MOUENSIS, Crosse. Pl. 19, figs. 4–6.

Umbilicated, obliquely striulate, subdiaphanous, brownish corneous, closely reticulated with chestnut, with numerous, wide, dark chestnut maculations at the suture, suture submargined, carina articulated with corneous and chestnut, base reticulated with chestnut maculations confluent into oblique radiating zones around the umbilicus; whorls 6, flattened, the last not descending in front, carina acute; aperture livid white, shining. Diam. 17 mill.

*New Caledonia.*

Said to differ from the preceding species by its more lenticular form, less elevated spire, flatness and coloring. It will probably prove identical, or at most a variety.

Subsection POECILOZONITES, Sandberger, 1884.

H. BERMUDENSIS, Pfr. Pl. 19, figs. 7–10.

Narrowly umbilicated, conoidally lenticular, rather thin, rugulosely striate, periphery carinated; light yellowish brown, marbled

more or less obsoletely with fulvous, with usually a chestnut band extending narrowly above and broadly below the periphery (sometimes absent); whorls 7, scarcely convex; aperture subtrapezoidal, lip simply thickened within, columella short, vertical, forming an angle with the basal margin. Diam. 2·3 mill.

*Bermuda.*

Section MICROPHYSA, Albers, 1860.

H. PORTORICENSIS, Pfr. Pl. 19, figs. 11, 12.

Perforate, thin, diaphanous, corneous, closely striated; whorls 5, a little convex, suture deep, last whorl marked by several spiral striæ. Diam. 10 mill.

*Porto Rico, W. I.*

H. DESIDERATA, Pfr. Pl. 19, fig. 13.

Perforate, thin, striulate, whitish (when living corneous or hyaline ?), suture deep; whorls 6, convex, subequal, the last shouldered, much higher than wide, not descending in front, base convex. Diam. 4·3 mill.

*Haiti.*

H. TURBINIFORMIS, Pfr. Pl. 19, fig. 14.

Perforate, obliquely striulate, corneous white; whorls 5, convex, a little exserted. Diam. 7 mill.

*Cuba, Jamaica.*

*H. subpyramidalis*, Ads., is a synonym; *H. McNabiana*, Chitty, probably another.

H. ANTHONIANA, Adams. Pl. 19, fig. 15.

Perforate, somewhat solid, striulate, shining, whitish under a deciduous fulvescent epidermis; whorls 6, convex, the last not descending, base subplanulate. Diam. 10 mill.

*Jamaica.*

H. VIRESCENS, Pfr. Pl. 22, figs. 51–53.

Narrowly umbilicated, rather thin, slightly striulate, light greenish yellow, suture impressed; whorls 6, a little convex, the last not descending, base somewhat flattened. Diam. 13·5 mill.

*Haiti.*

H. TRANSLUCENS, Gundl. Pl. 22, figs. 54–56.

Narrowly umbilicated, thin, striulate, translucent, yellowish white; whorls 6½, slightly convex, slowly increasing, the last not descending, base inflated. Diam. 7 mill.

*Eastern Cuba.*

H. Boothiana, Pfr. Pl. 19, fig. 16.

Narrowly umbilicated, hyaline, very minutely striated; whorls 5, convex. Diam. 5·67 mill.

*Cuba.*

*H. Lavalleana*, d'Orb. (figures, but not description), is a synonym.

Var. vitrina, Adams.

Larger. Diam. 8 mill.

*Jamaica.*

H. musicola, Shuttleworth. Pl. 8, fig. 66.

Narrowly, subcovered umbilicated, very thinly, obliquely, sharply costulate, the interstices striulate, chestnut corneous, epidermis deciduous; whorls 4½, convex, the last rounded. Diam. 9 mill.

*Porto Rico.*

A larger variety has a narrow white peripheral band.

Diam. 11 mill.

H. euclasta, Shuttleworth. Pl. 8, fig. 65.

Very narrowly umbilicated, thin, waxy, with close, hair-like striæ, brownish corneous, suture impressed; whorls 4, scarcely convex, moderately increasing, the last not descending, periphery obsoletely angulated, subexcavated around the umbilicus.

Diam. 12·5 mill.

*St. Thomas, Cuba.*

*H. Swifti*, Pfr., is a synonym.

A variety, with the spire a little more elevated, occurs in Porto Rico.

H. Montetaurina, Pfr. Pl. 19, figs. 17–19.

Narrowly umbilicated, thin, striulate, pellucid, whitish hyaline, suture subchanneled; whorls 6½, very narrow, convex, the last not descending, base more convex. Diam. 4·67 mill.

*Cuba.*

H. elatior, Weinland and Martens. Pl. 19, figs. 20–22.

Narrowly umbilicated, somewhat roughly striulate, corneous hyaline; whorls 5½, convex, slowly increasing, the last a little turgid, not descending. Diam. 5 mill.

*Haiti.*

H. angustispira. Adams. Pl. 19, fig. 23.

Narrowly umbilicated, thin, smoothish, diaphanous, corneous white; whorls 5½, convex, very narrow, the last not descending in front, compressed on the sides. Diam. 3·67 mill.

*Jamaica.*

H. FUSCULA, Adams. Pl. 19, fig. 24.

Narrowly umbilicated, striulate, scarcely shining, fuscous; whorls 4, convex, the last somewhat narrow, not descending. Diam. 3 mill.

*Jamaica.*

H. VORTEX, Pfr. Pl. 19, figs. 25–28.

Narrowly umbilicated, hyaline, obsoletely striated; whorls 5½, a little convex, narrow, the last subangulate, sometimes a little deviating. Diam. 6 mill.

*Cuba, St. Croix, Jamaica, Porto Rico, Bermuda, Barbados, Florida.*

Gould described it from the last locality as *H. selenina;* it is also *H. otellina*, Riise, MSS., and *H. bracteola*, Fer. (fig. 28), from Martinique, may probably be added, as indicated by Bland.

H. ALVEUS, Adams. Pl. 19, fig. 29.

Rather narrowly umbilicated, with very slight, unequal, incremental striæ, translucent, whitish, suture deep; last whorl narrow, periphery obsoletely angulated. Diam. 7·5 mill.

*Jamaica.*

H. PERAFFINIS, Adams. Pl. 19, fig. 30.

Umbilicated, striulate, hyaline; whorls 6, convex, the last rounded, base flatter. Diam. 8 mill.

*Jamaica.*

Adams considered it intermediate between *H. Boothiana* and *H. vortex.*

H. SUBAQUILA, Shuttl. Pl. 19, fig. 31.

Narrowly umbilicated, very slightly striulate, light corneous or whitish, a little shining; whorls 4½, gradually increasing, convex, the last rounded-inflated, suture deep. Diam. 5·5 mill.

*Porto Rico, Vieque, St. Thomas.*

With fewer whorls than *H. peraffinis*, and wider umbilicus than *H. Boothiana*, the spire more depressed than in either.

H. SPRETA, Adams. Pl. 19, fig. 32.

Umbilicus rather narrow, light corneous, translucent, smooth; whorls 5, convex, shouldered, suture rather deep, last whorl rounded. Diam. 6.25 mill.

*Jamaica.*

Var. ERRANS, Adams.

Whorls less shouldered, umbilical region somewhat thickened, opaque.

This species has a spire somewhat depressed as in *H. peraffinis*, with the convex base of *H. Boothiana*, the umbilicus wider than the latter and the aperture not so high—but narrower than in *peraffinis*. The shell figured is not fully grown.

H. INCONSPICUA, Adams. Pl. 19, fig. 33.

Moderately umbilicated, striulate, thin, subhyaline, suture deep; whorls 4½, a little convex, the last not descending, base inflated, subcompressed towards the umbilicus. Diam. 4·3 mill.

*Jamaica.*

H. BREVIOR, Adams. Pl. 19, fig. 34.

Moderately umbilicated, diaphanous, whitish; whorls 4½–5, scarcely convex, the last not descending. Diam. 5·5 mill.

*Jamaica.*

*H. depressa*, Adams, is a synonym.

H. SINCERA, Adams. Pl. 19, fig. 35.

Moderately umbilicated, thin, striulate, waxy, white; whorls 4½, somewhat convex, the last narrow. Diam. 4 mill.

*Jamaica.*

H. UMBRATILIS, Guppy. Pl. 19, fig. 36.

Deeply umbilicated, distinctly, regularly striated, diaphanous, corneous or whitish; whorls 5½–6, slowly increasing.

Diam. 1·5 mill.

*Trinidad, W. I.*

H. IMMUNDA, Adams. Pl. 19, figs. 37, 38.

Moderately umbilicated, thin, irregularly costulate-striate, scarcely shining, diaphanous, light corneous or greenish, suture deep; whorls 5½, convex, tumid at the suture, the last scarcely descending, periphery obsoletely angulated. Diam. 12·5 mill.

*Jamaica.*

H. RUFULA, Pfr. - Pl. 19, fig. 39.

Narrowly umbilicated, thin, closely costulate, diaphanous, a little shining, brownish, suture impressed; whorls 4½, a little convex, the last not descending, base a little flattened. Diam. 10·5 mill.

*Jamaica.*

H. DIMINUTA, Adams. Pl. 19, figs. 40, 41.

Widely umbilicated, thin, rather closely plicately ribbed, diaphanous, greenish- or corneous-white, suture deep; whorls 4, convex, subequal, the last not descending, base somewhat flattened.

Diam. 3 mill.

*Jamaica, Grenada.*

H. PERDEPRESSA, Adams. Pl. 19, fig. 42.

Widely umbilicated, striulate, diaphanous, corneous-white, spire flat, apex immersed, suture deep; whorls 4½, convex, slowly increasing, the last descending in front, periphery subangulated, base inflated. Diam. 5 mill.

*Jamaica.*

H. CYCLOSTOMOIDES, Pfr. Pl. 19, figs. 43, 44.

Widely umbilicated, scarcely convex above, concave below, smooth, hyaline; whorls 4, slightly convex, rapidly increasing, the last depressed, with obsoletely angulated periphery; aperture subcircular. Diam. 4 mill.

*Cuba.*

H. PTYCHODES, Pfr. Pl. 19, fig. 45.

Moderately umbilicated, much depressed, discoidal, very thin, arcuately plicate, hyaline under a thin, deciduous, fuscous epidermis; whorls 4½–5, the base scarcely more convex. Diam. 10·3 mill.

*Jamaica.*

H. TICHOSTOMA, Pfr. Pl. 19, fig. 46.

Widely umbilicated, hyaline, shining, thinly striated; whorls 5, somewhat flattened above, narrow, the last much wider; aperture with the penultimate whorl partly halved by a horizontal lamina. Diam. 6 mill.

*Cuba.*

*H. lamellina*, Newcomb, MSS., is a synonym.

H. STIGMATICA, Pfr. Pl. 22, figs. 24–26.

Umbilicated, thin, yellowish corneous, diaphanous, very minutely hispid-granulate; spire flat; whorls 4½, convex, the last a little descending, rounded; lip very slightly expanded. Diam. 17 mill.

*Cuba.*

H. VELUTINA, Lam. Pl. 22, figs. 30–32.

Perforate, thin, very minutely subreticulately striate, the epidermis sublamellate, waxy, shining, velvety but not pilose, suture deep; whorls 5, convex, slowly increasing, the last not descending, with subplanulate base. Diam. 13 mill.

*Porto Rico.*

H. SUAVIS, Gundlach. Pl. 22, figs. 33–35.

Narrowly umbilicated, thin, minutely granulate and very shortly pilose, light brownish, spire immersed in the middle; whorls

scarcely 5, convex, the last rounded, deflected in front; aperture auriform-lunar, margins converging, a little expanded.

Diam. 15–16 mill.

*Cuba.*

H. RARIPILA, Morelet. Pl. 22, figs. 27–29.

Narrowly umbilicated, thin, subdiaphanous, corneous, with short, soft hairs; whorls 4½, a little convex, the last rounded, not descending, very slightly constricted at the aperture; aperture scarcely oblique, the margins approaching, columella subangularly descending. Diam. 7–8 mill.

*Cuba.*

It is *H. stigmatica*, var. of Poey.

H. DEBILIS, Pfr. Pl. 22, figs. 36–38.

Umbilicated, very thin, light corneous, with close thread-like oblique striæ; whorls 4, a little convex; aperture large, subcircular, lip thin, acute. Diam. 9·6 mill.

*Cuba, Porto Rico.*

Is *H. fragilis*, Pfr.

H. SIGMOIDES, Morelet. Pl. 22, figs. 57–59.

Narrowly perforate, whitish corneous, thin, shortly pilose, spire involute, aperture immersed, suture deep; whorls 4, convex, the last rapidly enlarging, tumid, a little flattened laterally.

*Guatemala.*

*H. vitrinoides*, Tristram, an unfigured species; is referred here by Pfeiffer.

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*Unfigured Species.*

H. GRACILIS, Poey. *Cuba.*

H. PELLUCIDA, Ads. (= H. INVASA, Pfr.). *Jamaica.*

H. HILUM, Weinl. and Mart. *Haiti.*

H. HYPOLEPTA, Shuttlew. *St. Thomas, W. I.*

H. ALICEA, Guppy. *Trinidad.*

H. GYROPLATYS, Dohrn. *Antioquia, N. Granada.*

H. INGERSOLLII, Bland. Pl. 20, figs. 47, 48.

Moderately umbilicated, thin, translucent, rather smooth, white, spire plane, apex subimmersed, suture impressed; whorls 5½, slightly convex, slowly increasing, the last not descending, more convex on the base. Diam. 4 mill.

*Southwestern Colorado, U. S.*

H. Lansingi, Bland. Pl. 20, figs. 49, 50.

Imperforate, smooth above, substriate below, brownish corneous, suture impressed; whorls 5½, a little convex, the last not descending, periphery obsoletely angulated, base more convex, excavated around the umbilicus; outer lip of aperture thickened, with an obsoletely denticular lamella. Diam. 3 mill.

*Astoria, Oregon.*

This with the following species forms the group Anceyia, Pilsbry (*Pristina*, Ancey, preoccupied in Vermes). It is characterized by aculeate marginal teeth and ribbed jaw with a hyaline, Conulus-like, imperforate shell.

H. Stearnsii, Bland. Pl. 20, figs. 51, 52.

Like *H. Lansingi* but larger, more elevated, and more distinctly striated; aperture without lamella. Diam. 4 mill.

*Astoria, Oregon, Washington Terr., Alaska.*

H. epsilon, Pfr. Pl, 20, fig. 53.

Narrowly umbilicated, thin, obliquely, closely plicate above, smoothish below, light corneous; whorls 3½, a little convex, the last not descending. Diam. 1·75 mill.

*New Zealand.*

*H. caput-spinulæ*, Reeve, is a synonym.

H. Causia, Benson. Pl. 15, figs. 67, 68.

Perforate, somewhat solid, obliquely striulate, with very minute, close spiral slight lines, a little shining, yellowish corneous, paler below, suture impressed, submargined; whorls 5, somewhat convex, periphery rounded. Diam. 7 mill.

*Phie Thán, Tenasserim.*

H. Bertholdiana, Pfr. Pl. 4, figs. 67, 68.

Narrowly umbilicated, conoidally lenticular, thin, closely radiately striate, scabrous (juvenile hairy), diaphanous, corneous brown. whorls 5, scarcely convex, regularly increasing, the last with angulated periphery, a little convex below. Diam. 8·5 mill.

*Is. S. Antao and S. Vicente, Cape Verd Archip.*

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H, Campbellica, Filhol (unfigured). *New Zealand.*

H. pumila, Hutton (unfigured). *New Zealand.*

Subsection Pelia, Albers, 1860.

H. spirulata, Pfr. Pl. 20, fig. 56.

Imperforate, very slightly striate, with concentric elevated lines, thin, fulvous; whorls 5, slowly increasing, periphery compressly

carinated, base scarcely convex, impressed in the middle.

*Real Llejos, Central America.*

Section PELLA, Albers, 1860.

H. TROTTERIANA, Benson. Pl. 20, fig. 57.

Imperforate, very thin, translucent, obsoletely plicatulate, greenish corneous, apex smooth, reddish; whorls 4, slightly convex, the last not descending; columellar margin filiform, subvertical, slightly arcuate, entering, white. Diam. 19·5 mill.

*Uitenhage, So. Africa.*

H. NATALENSIS, Pfr. Pl. 20, fig. 58.

Imperforate, thin, smooth, subdiaphanous, corneous whitish, with irregular brownish radiating lines; whorls 4, scarcely convex, the last inflated; columella subvertical, filiform, profoundly entering, interior fulvous, shining. Diam. 12 mill.

*Natal, So. Africa.*

H. COTYLEDONIS, Benson. Pl. 20, fig. 59.

Imperforate, thin, rather smooth, diaphanous, brownish corneous, opaquely widely white-zoned; whorls 5, scarcely convex, the last not descending, convex below, rudely radiately subplicate, with two narrow bands; columella tuberculately callous above.

*Simon's Bay, Cape of Good Hope.*

H. PINGUIS, Krauss. Pl. 20, fig. 60.

Perforate, thin, pellucid, smooth, shining, brownish corneous above, paler beneath; whorls 5½, convex, slowly increasing, base subplanulate, impressed in the middle. Diam. 8 mill.

*Natal, So. Africa.*

H. CAPENSIS, Pfr. Pl. 20, fig. 61.

Perforate, thin, opaque, a little shining, white, dotted with blackish, obsoletely brown rayed; whorls 4½, scarcely convex; interior fulvous. Diam. 9 mill.

*Cape of Good Hope.*

*H. irrorata*, Ziegl. MSS., and *H. littoricola*, Benson, MSS., are synonyms.

H. AUSTRALIS, Menke. Pl. 20, fig. 62.

Narrowly umbilicated, smooth, obsoletely striated, whitish with obsolete ashy radiating maculations and interrupted bands; whorls 5, rapidly increasing. Diam. 4 mill.

*? Swan River, Australia.*

H. Uitenhagensis, Krauss. Pl. 20, fig. 63.

Perforate, striulate, white, with brownish dots, apex papillary; whorls 6, scarcely convex, the last inflated; interior brownish.

Diam. 11 mill.

*Cape of Good Hope.*

Differs from *H. Capensis* in size, papillary spire, whorls less convex, base more inflated.

H. paludicola, Benson. Pl. 20, fig. 64.

Perforate, thin, striulate, opaque white, with translucent spots and purplish brown broken bands; whorls 5–5½, convex, the last inflated, purple brown towards the aperture or all over; aperture brownish. Diam. 5·5 mill.

*Cape of Good Hope.*

H. Darnaudi, Pfr. Pl. 20, figs. 65, 66; Pl. 22, figs. 39–41.

Perforate, thin, rugosely striate, corneous, with opaque white bands; whorls about 5, scarcely convex, slowly increasing, the last not descending, rounded. Diam. 8 mill.

*Sennaar, Africa.*

*H. Isseli*, Jickeli, is a synonym.

Var. Heuglini, Martens. Pl. 22, figs. 39–41.

Umbilicus wider, with fleckings of opaque brownish yellow above; and narrow pellucid fasciations below.

*Southern Abyssinia.*

H. d'Hericourtiana, Bourg. Pl. 20, figs. 67, 68.

Narrowly umbilicated, subpellucid, a little shining, corneous, smooth at first, then striulate, last whorl coarsely striulate; whorls 5, a little convex, the last with subangulate periphery, base a little more convex, slightly tumid around the umbilicus. Diam. 9 mill.

*Choa, Ethiopia.*

H. Lejeaniana, Bourg. Pl. 22, figs. 42, 43.

Very narrowly perforate, almost covered, fragile, diaphanous, shining, closely striate, subplicate on the last whorl, with very minute spiral lines; corneous, with a rather opaque white peripheral band; whorls 6, convex, regularly, rather rapidly increasing, the last descending in front. Diam. 15 mill.

*Abyssinia.*

Is *H. Darnaudi*, Jickeli, in part.

H. Achilli, Bourg. Pl. 22, figs. 44–46.

Narrowly perforate, thin, subopaque, finely striated, whitish, with numerous, narrow corneous bands; whorls 6, somewhat convex, moderately increasing, the last rounded, a little descending in front. Diam. 16 mill.

*Abyssinia.*

H. Isseli, Morelet. Pl. 20, figs. 69, 70.

Narrowly umbilicated, pellucid, brownish corneous, closely strigate and opaquely multifasciate; whorls 5–5½, convex, suture deep, last whorl inflated, narrow. Diam. 15–18 mill.

*Bogos, Abyssinia.*

Var. minor. Less striate, brownish corneous, unicolor or sparsely zoned.

H. Zanguebarica, Craven. Pl. 22, figs. 60–62.

Conically turbinate, perforate, transparent, smooth, dark brown; whorls 4½–5, convex, perforate. Diam. 3 mill.

*Magila, and Zanzibar Island, E. Africa.*

Perhaps this should have been included in the Zonitidæ, as a *Conulus*.

H. ænea, Krauss. Pl. 20, fig. 71.

Perforate, slightly, very closely costulate, thin, diaphanous, brownish corneous, with a bronze lustre; whorls 4, a little convex, rapidly increasing; columella dilated above into a triangular blade. Diam. 9·5–12 mill.

*Natal, So. Africa.*

H. bisculpta, Benson. Pl. 20, fig. 72.

Perforate, translucent, but little shining, brownish above, corneous below, vertically striate and plicate, decussated by spiral striæ, suture deep; whorls 4½, convex, slowly increasing, the last not descending, rounded, more convex below; columella triangularly dilated above. Diam. ·7 mill.

*Cape of Good Hope.*

H. Planti, Pfr. Pl. 20, fig. 73.

Perforate, thin, membranously costulate, and long haired, diaphanous, corneous; whorls 5½, scarcely convex, slowly increasing, the last not descending, subplane above, obsoletely angulated, base convex; columella dilated above. Diam. 10 mill.

*Natal, So. Africa.*

By a typographical error this species was first described as *H. Platti*.

H. Lovéni, Krauss. Pl. 20, fig. 74.

Perforate, thin, with regular distant elevated striæ, and very close decussating, spiral lines, corneous, pellucid, epidermis hirsute, spire subpapillary; whorls 5, somewhat flattened, the last carinate above, base convex. Diam. 10 mill.

*So. Africa.*

H. Knysnaënsis, Pfr. Pl. 20, fig. 75.

Narrowly umbilicated, somewhat solid, ribbed-striate, waxy, corneous olivaceous; whorls 4, a little convex, the last inflated, base smoothish, shining; aperture pearly, columella dilated above.

Diam. 24 mill.

*Cape of Good Hope.*

H. perplicata, Benson. Pl. 20, fig. 76.

Narrowly umbilicated, thin, corneous, subdiaphanous, rather distantly obliquely plicate, the interstices longitudinally striated, suture impressed: whorls 5–5½, slightly convex, slowly increasing, the last slightly depressed, not descending, more convex below.

Diam. 7 mill.

*Cape of Good Hope.*

H. microscopica, Krauss. Pl. 20, figs. 77, 78.

Very narrowly umbilicated, striulate, thin, pellucid, light corneous; whorls 4, convex, the last not descending, base somewhat flattened. Diam. 1·15 mill.

*So. Africa.*

H. dumeticola, Benson. Pl. 20, fig. 79.

Somewhat widely umbilicated, thin, costulately striate above, smoother below, corneous white, under a caducous yellowish, polished epidermis, suture impressed; whorls 3½–4, slightly convex, the last rapidly increasing, subdepressed, base convex.

Diam. 11·5 mill.

*Cape of Good Hope.*

H. cosmia, Pfr. Pl. 20, fig. 80.

Openly, deeply umbilicated, thin, rugosely subplicate, translucent, a little shining, waxy, greenish corneous; whorls 4, subplane, rapidly increasing, the last dilated in front, not descending.

Diam. 7 mill.

*Near Camp's Bay, Cape of Good Hope.*

Is *H. munda*, Bens. not Ads., and *H. cerea*, Pfr. not Gould.

H. PETROBIA, Benson. Pl. 20, fig. 81.

Umbilicated, diaphanous, slightly shining, obliquely, unequally, subdistantly plicate, the interstices slightly longitudinally striate, light corneous, suture lightly impressed; whorls 4½–5, a little convex, slowly increasing, the last obtusely angulated above, more convex below, and angularly compressed around the umbilicus.

Diam. 6 mill.

*Cape of Good Hope.*

H. RARIPLICATA, Benson. Pl. 20, fig. 82.

Narrowly umbilicated, thin, corneous, with curved subdistant plications, suture deep; whorls 4, the last narrow, not descending.

Diam. 4·25.

*Cape of Good Hope.*

H. SABULETORUM, Benson. Pl. 20, fig. 83.

Rather widely umbilicated, somewhat solid, very closely striate, with distant curved riblets, not shining, light corneous, suture deep; whorls 4½–5, slowly increasing, convex, the last rounded.

Diam. 4·25 mill.

*Cape of Good Hope.*

H. VORTICIALIS, Benson. Pl. 20, fig. 84.

Widely umbilicated, thin, brownish corneous, spire a little concave, closely radiately plicate, suture deep; whorls 4, narrow, convex, the penultimate prominent, last not descending, compressed on the sides, convex below. Diam. 5·5 mill.

*Cape of Good Hope.*

H. RIVULARIS, Krauss. Pl. 20, figs. 85–87.

Rather widely umbilicated, thin, closely costulate, waxy, pellucid, corneous brown; whorls 4, slightly convex, slowly increasing; the last not descending, base convex. Diam. 3·5 mill.

*Natal, So. Africa.*

H. APRICA, Krauss. Pl. 20, fig. 88.

Perforate, thin, with rough, close incremental striæ, slightly decussated by very close spiral lines, opaque, whitish, under a yellowish corneous epidermis, apex papillary; whorls 5, scarcely convex, the last subangulated above, base convex; lip thinly labiate within. Diam. 9 mill.

*So. Africa.*

H. HARTVIGIANA, Pfr. Pl. 20, figs. 89–91.

Subcovered umbilicated, rather thin, corded-costulate, with very close intermediate striæ, subpellucid, dark brown, shining; whorls

5, convex, the last not descending, inflated; aperture subpearly, base of lip slightly thickened. Diam. 17 mill.

*Cape of Good Hope.*

H. Tollini, Albers. Pl. 21, figs. 92–94.

Covered subperforate, thinly striated, very lightly decussated by spiral striæ, a little shining, diaphanous, brownish corneous, suture impressed, submargined; whorls 5, a little convex, the last rounded, not descending. Diam. 12–14 mill.

*Table Mt., Cape of Good Hope.*

H. Menkeana, Pfr. Pl. 21, fig. 98.

Perforate, depressed, more convex below, somewhat thin, smooth, white, with 1–5 brown bands, the upper one wide, epidermis light corneous, diaphanous, suture moderately impressed; whorls 4, scarcely convex, rapidly enlarging. Diam. 18 mill.

*Cape of Good Hope.*

H. symmetrica, Craven. Pl. 21, fig. 99.

Imperforate, vitreous, semitransparent, light olive green, dull glossy below and within the aperture, with growth lines and faint spiral striæ; whorls 4½, convex, the last equalling the others in breadth, suture rather deep. Diam. 16 mill.

*Leydenburg, Transvaal, So. Africa.*

H. cyclaria, Morelet. Pl. 21, figs. 95–97.

Subperforate, thin, regularly costulate-striate, shining, light fulvous, suture subchanneled; whorls 5½, somewhat convex, the earlier ones slowly increasing, the last tumid, narrow, with dilated and convex base. Diam. 22 mill.

*Mauritius.*

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*Unfigured Species.*

H. Condenmoyi, Nevill. *Mauritius.*

H. pisolina, Gould. *Cape of Good Hope.*

H. Hudsoniæ, H. Omphalion, H. Charybdis, H. Browningii, H. Prionacris, Benson. *Cape of Good Hope.*

H. Africæ, Brown. *Great Brakke, So. Africa.*

H. congellana, and H. Roseri, Krauss. *Cape of Good Hope.*

Group IV. MACROCYCLIS, Beck, 1837.

Shell large, rather solid, widely umbilicated, depressed, the last whorl declining towards the aperture; aperture round-oval, peristome simple, the extremities approaching, and the lower somewhat reflected. H. LAXATA, Fer. *Chili.*

Section GLYPTOSTOMA, Bland and Binney, 1873.

Widely umbilicated, depressed, rather solid, rugosely striate; whorls 6, the last depressed-globose, not deflected at the aperture; aperture obliquely subcircular, peristome simple, acute, thickened within, its extremities approaching, columellar lip scarcely reflected. H. NEWBERRYANA, W. G. Binney.

*California.*

Group IV. MACROCYCLIS, Beck, 1837.

H. LAXATA, Fer. Pl. 21, figs. 100–2.

Widely umbilicated, thin, very closely rugulose-striate, fulvous brown, the base shining fulvous-green, decussated by very minute spiral lines; whorls 4½–5, slightly convex, rapidly enlarging, the last wide, depressed, descending in front; aperture pearly.

Diam. 45 mill.

*Chili.*

*H. Peruviana*, Lam., *H. Deshayesii*, Anton, and *H. cincinnus*, Reeve, are synonyms.

Var. BANKSII, Cuming. Figs, 1, 2.

Larger: diam. 60 mill.

This is var. *maxima* of Pfr. The juv. is *H. umbilicata*, Anton. The unfigured *H. Gayi*, Hupé, may also be a juvenile, as surmised by Philippi.

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The following Australian species are included by Pfeiffer: their pertinence is questionable.

H. FRANKLANDIENSIS, Forbes. Pl. 21, fig. 3.

Rather widely, conically umbilicated, somewhat solid, distinctly arcuately striated, very shining, fulvous yellow, with some irregular deeper stripes; whorls nearly 5, somewhat flattened, the last a little dilated, subdepressed, not descending; aperture pearly.

Diam. 26 mill.

*Lizard Is., Australia.*

H. HARRIETTÆ, Cox. Pl. 21, figs. 4, 5.

Rather widely umbilicated, thin, light yellowish brown, with irregular dark strigations, roughly striated above, smooth below;

whorls 4, somewhat rapidly increasing, flattened above, convex below, the last obsoletely angulated, not depressed. Diam. 13 mill.

*Richmond River, Australia.*

Similar to juvenile specimens of *H. Franklandiensis.*

H. Ramsayi, Cox. Pl. 3, figs. 19, 20.

Widely umbilicated, subdiscoidal, rugosely striate, under a smooth olivaceous epidermis; whorls 4½–5, rapidly increasing, the last rounded on the periphery, a little deflected in front; aperture large, horizontal, bluish white. Diam. 32·5 mill.

*Richmond River, Australia.*

Section Glyptostoma, Bland and Binney, 1873.

H. Newberryana, W. G. Binney. Pl. 21, figs. 6, 7.

Moderately umbilicated, solid, lightly granularly decussated by incremental and spiral striæ, whitish, under a blackish or reddish brown epidermis; whorls 6, a little convex, regularly increasing, the last subdepressly rounded, scarcely descending in front; aperture pearly white, lip subcallous within. Diam. 35 mill.

*California.*

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Group V. ANCHISTOMA (Klein.), H. and A. Adams, 1855.

Shell depressed, corneous, with aperture usually dentate or plicate, lip contracted and reflected, usually widely or moderately umbilicated, sometimes imperforate. Jaw odontognathous (oxygnathus in Ophiogyra).

Mostly American and European; *Ophiogyra* is Asiatic.

Section I. Gonostoma, Held, 1837.

Shell umbilicated, orbicularly depressed, narrow-whorled, often hirsute; whorls 5–7, slowly increasing; aperture oblique, narrowly lunar, more or less insinuated or tooth-like within, the peristome reflected and labiate, parietal wall unarmed.

*European.*

Subsection I. Drepanostoma, Porro, 1836.

Nautiliform, last whorl largely enveloping; aperture vertical, falciform, peristome callous. H. nautiliformis, Porro.

*So. Europe.*

*Ammonitella*, Cooper, 1868, is a synonym.

Subsection II. Trigonostoma, Fitzinger, 1833.

Shell depressed or plane above, periphery rounded, axis umbili-

cated, aperture oblique, more or less trilobed, the peristome callous, insinuated or dentate. H. OBVOLUTA, Müll.

*Europe.*

*Helicodonta*, Risso, 1826, *Vortex*, Beck, 1837, and *Euphemia*, Leach (teste Beck), 1844, are synonyms.

Subsection III. CARACOLINA, Ehrenb, 1831.

Shell depressed, lenticular, the periphery obtusely angulated to acutely carinated, aperture narrow, oblique, somewhat basal, with or without teeth on the lip. H. LENS, Fer.

*Europe.*

Section II. POLYGYRA, Say, 1817.

Widely or moderately umbilicated, orbicular-planate, usually obliquely costulate-striate; whorls slowly increasing, the last constricted behind the aperture, shortly descending; aperture subreniform or irregularly sinuated, peristome narrowly reflected, callous, sometimes dentate within, the parietal wall often with a triangular callus, connecting with the peristome, and more or less tooth-like. H. AURICULATA, Say.

*United States.*

Subsection I. POLYGYRATIA. Gray, 1847.

Shell discoidal, plane above, concave below; whorls numerous, narrow, all equally visible above and below, the last descending in front; aperture oblique, lunately rounded, the peristome margined, shortly reflected, interior unarmed. H. POLYGYRATA, Born.

*So. America.*

*Ophiogyra*, Albers (in part), 1850, *Systrophia*, Pfr., 1855, and *Microphyura*, Ancey, are synonyms.

Subsection II, POLYGYRA, Say (sensu stricto).

Widely umbilicated, planorboid, many whorled, whorls narrow, ribbed above, periphery angulate; aperture small, trigonal, with a V-shaped parietal tooth, joining the lip-extremities. H. CEREOLUS, Muhlf.

*So. U. S.* and *West Indies.*

Subsection III. POLYGYRELLA, Bland, 1869.

Widely umbilicated, discoidal, ribbed above; whorls 7–8, narrow, the last deflected at the aperture; aperture subvertical, the margins joined by a parietal triangular tooth, interior with two

rows of three teeth each, visible through the base. H. POLYGYRELLA, Bland and Cooper.

*Idaho, U. S.*, etc.

*Adelodonta*, Ancey, is a synonym.

Subsection IV. DÆDALOCHILA, Beck, 1837.

Globosely depressed, costulate above, periphery angulated, base convex, showing more than one—sometimes two whorls; lip ear-shaped, the internal teeth with corresponding exterior constrictions, the extremities of the lip joined by a parietal V-shaped callus. H. AURICULATA, Say.

*So. United States, Mexico*, etc.

Subsection V. SCULPTARIA, Pfr, 1885.

Discoidal, widely umbilicated, periphery carinate, last whorl a little solute at the aperture; peristome continuous, lip reflected, with three deep lip teeth and one entering parietal lamina. H. SCULPTURATA, Gray.

*W. Africa.*

Section III. STROBILA, Morse, 1864.

Shell umbilicated, globosely conic, obliquely ribbed, smoother below; aperture lunately rounded, peristome thickened, reflected, the parietal wall and base of last whorl each with two or more entering revolving laminæ. H. LABYRINTHICA, Say.

*United States, West Indies.*

Section IV. STENOTREMA, Rafinesque, 1819.

Shell small, often hirsute, the aperture basal, extending from the periphery to the axis, parietal wall with a long lamellar tooth, lip broad, usually with a central internal notch, umbilicus usually closed, sometimes open.

Within the aperture, and near the axis, is an accessory column or pillar, probably assisting the animal in retiring within its shell. H. HIRSUTA, Say.

*United States.*

*Stenostoma*, Raf., 1831, is a synonym.

Section V. TRIODOPSIS, Rafinesque, 1819.

Shell of moderate size, depressed globose; the aperture trilobate on account of denticles on the superior and inferior parts of the lip and on the parietal wall; umbilicus closed or open.

Subsection I. TRIODOPSIS (sensu stricto).

Umbilicus open, lip teeth small, subequal. H. TRIDENTATA, Say. *United States.*

Subsection II. ISOGNOMONOSTOMA, Fitzinger, 1833.

Umbilicus closed, parietal tooth often larger, blade shaped, epidermis sometimes hirsute. H. INFLECTA, Say. *United States, Europe.*

*Helicodonta*, Moquin Tandon, 1855, is a synonym.

Subsection III. XOLOTREMA, Rafinesque, 1819.

Umbilicus closed, aperture with a lamellar curved parietal tooth, a long lamellar tooth on the basal part of the lip, and frequently a small denticle on its upper part. H. PALLIATA, Say. *United States.*

Subsection IV. METODONTIA, Mollendorff, 1883.

Narrowly umbilicated, or nearly covered, lip dentately thickened within, parietal wall also dentate.

H. HEMIPLEURIS, Moll. *China.*

Section VI. MESODON, Rafinesque, 1819.

Shell rather large, depressed globose, usually light horn color, the aperture with a white reflected lip, lip with or without a single basal tooth, parietal wall with or without a small denticle, umbilicus open or closed.

Subsection I. MESODON (restricted).

Shell subglobose or orbicularly depressed; the lip sometimes slightly dentately thickened at the base; parietal tooth, when present, small; umbilicus partially or completely closed by an expansion of the lip.

H. ALBOLABRIS, Say. *United States.*

*Aplodon*, Raf., 1819, and *Patera*, Albers, 1850, are synonyms.

Subsection II. ULOSTOMA, Albers, 1850.

Shell large, globosely depressed, aperture semicircular, the lip tuberculately toothed at the base, umbilicus open.

H. SAYI, Binney, *United States.*

Section VII. ATOPA, Albers, 1850.

Often sinistral, planorbiform, flattened above, whorls more convex below, widely umbilicated, the last whorl more or less compressed and deflected in front, aperture oblique or subhorizontal, the lip

thickened and revolute, interior usually more or less constricted by lamellar teeth, situated far within, but visible through the wall of the shell when held against the light, parietal wall generally with lamellæ, one of which is large and visible, the others deep-seated.

Subsection I. ATOPA (restricted).

Parietal lamellæ entering, simple, aperture sometimes entirely unarmed. H. ERRONEA, Albers.

*So. Asiatic.*

*Corilla*, H. and A. Adams, 1855, is a synonym.

Subsection II. PLECTOPYLIS, Benson, 1860.

Aperture with one or more deep seated perpendicular lamellæ on the parietal wall, in addition to the entering parietal and palatal lamellæ. H. PLECTOSTOMA, Benson.

*India, China.*

Major Godwin Austen, whose synopsis of the Indian species is followed in these pages remarks (Zool. Proc., 611, 1874):

"It seems difficult to account for the use of the extremely contracted form of the last whorl, as seen so largely and intricately developed in this group of the Helicidæ."

"When breaking up a number of shells to expose the barriers, and ascertain if their characters were constant, I was greatly interested to find in two instances the presence of small insects that had become fixed between the sets of teeth; it has occurred to me that this is a probable solution, and perhaps one of the uses which the barriers serve, and to this end have been developed."

"Insect life swarms in the forests where the shells are found; and it is quite possible that certain kinds of beetles, ants, or even leeches, prey upon the mollusca, and that those possessing such bars to their predatory visits, supplemented by the mucous secretion which the animal could at once exude, would have the best chance of surviving."

As stated above, it is necessary to break away the wall of the shell to discover the structure of the lamellæ, the strong entering parietal one being alone visible from the mouth.

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Group V. ANCHISTOMA, Ads., 1855.

Section GONOSTOMA, Held, 1837.

Subsection DREPANOSTOMA, Porro, 1836.

H. NAUTILIFORMIS, Porro. Pl. 23, figs. 63–65.

Perspectively umbilicated, corneous, hispid, spire immersed; whorls 5, narrow, scarcely conspicuous at first, the last whorl large,

partially involving the others; lip reddish brown, reflected, aperture narrowly lunar. Diam. 6·5 mill.

*Northern Italy.*

It is *Chloritis drepanostoma*, Beck.

H. YATESI, Cooper. Pl. 23, figs. 66–68.

Widely, deeply umbilicated, translucent, glabrous, corneous, with minute incremental lines; whorls 6½, the spire depressed, the last whorl conically subcompressed above, rounded below; aperture narrowly vertical, the lip obtusely thickened. Diam. 8 mill.

*Cave City, California.*

Subsection TRIGONOSTOMA, Fitz., 1833.

*European Species.*

H. ANGYGYRA, Ziegler. Pl. 23, figs. 69–71.

Umbilicated, concave above, plane below, light corneous, very minutely punctulate and striulate; whorls 6, convex, the last compressed, gibbous in front and suddenly deflected; peristome white-lipped. Diam. 11 mill.

*Italy, Switzerland, Tyrol.*

*H. Stentzii*, Partsch, is a synonym.

H. OBVOLUTA, Müller. Pl. 23, figs. 72–74.

Umbilicated, flattened above and below, opaque, brownish, velvety; whorls 6, narrow, slightly convex, the spire concave, penultimate whorl a little prominent, the last compressed, scarcely descending in front, scrobiculate; aperture obtusely triangular, the right and basal margins each with an obtuse tooth, lip reflected. Diam. 13 mill.

*Northern and Middle Europe.*

The synonyms are *H. trigonophora*, Lam., *H. bilabiata*, Olivi, *H. holosericea*, Gmel.

Var. BOSNIACA, Böttger.

Aperture larger, wider, scarcely trisinuate, lip well reflected, not scrobiculate externally. Diam. 12·5 mill.

*Bosnia.*

Var. PALLIDA, Moquin-Tandon.

Shell light colored.

*France.*

Vars. MAJOR and MINOR, Locard. *France.*

H. HOLOSERICA, Studer. Pl. 23, figs. 75–77.

Umbilicated, orbicular, depressed, convex below, corneous, thin; whorls 4½, flattened, the last anteriorly constricted and scrobiculate; aperture trisinuate, the peristome wide, regularly reflected, bidentate within. Diam. 11–13 mill.

*Alps of Switzerland, Austria, Styria, Carinthia, Silesia.*

*H. diodonstoma*, Bourg., is a synonym.

Var. PLURIDENTATA, Pollonera.

Aperture quadridentate, the two supplementary teeth are, one in the superior angle, the other smaller and more external, in the inferior angle of the columella.

*Piedmont.*

H. TRIARIA, Frivaldsky. Pl. 23, figs. 78–80.

Perspectively umbilicated, corneous, elegantly costulate, spire convex, a little obtuse; whorls 6, somewhat convex. slowly enlarging, the last angulated above, attenuated below; aperture sinuous, lip reflected, bidentate within. Diam. 5 mill.

*Transylvania.*

It is *H. Ocskayi*, Stentz.

Var. TRINODIS, Kimak. Fig. 80.

Aperture with three teeth; two on the outer lip, one on the parietal wall.

Var. *Transylvanica*, Hazay, is a synonym.

Var. TRIADIS, Kimak.

More conical, with narrower umbilicus, finer sculpture, aperture without teeth or reflected lip.

Var. TATRICA, Hazay.

Lip narrow, whitish, unidentate.

H. DIODONTA, Muhlfeldt. Pl. 23, figs. 81–83.

Widely umbilicated, discoidal, minutely granularly striate, brownish corneous; whorls 4½, scarcely convex, the last subcarinate, deflected in front, constricted at the aperture and impressed above; peristome reflected, reddish with two teeth within on the upper and basal portions. Diam. 11·5 mill.

*Transylvania, Servia.*

H. QUADRASI, Hidalgo. Pl. 23, figs. 84–87.

Widely, perspectively umbilicated, thin, granularly hirsute with very short hairs, corneous; whorls 5, a little convex, narrow, the

last not descending in front, subconstricted behind the aperture; peristome subsinuated, expanded, the margins joined by a semicircular reflected lamina. Diam. 5 mill.

*Near Valencia, Spain.*

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H. VALLISNIERI, Stefani. (Unfigured.) *Central Italy.*

*Chinese Species.*

H. BICONCAVA, Hende. Pl. 23, figs. 9–11.

Widely umbilicated, rufous, longitudinally striated, with long hairs; whorls 5, narrow, convex, the last laterally compressed, and much deflected at the aperture; aperture obliquely diagonal, peristome a little thickened, reflected, basal margin sinuous.

Diam. 9 mill.

*China.*

H. SUBOVOLUTA, Ancey (unfigured). *Inkiapo.*

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Subsection CARACOLINA, Ehrenb., 1831.

*European Species.*

**Ecarinate.*

H. LUSITANICA, Pfr. Pl. 23, figs. 88–90.

Umbilicated, discoidal, brownish, somewhat obliquely closely costulate, spire plane; whorls 5½, the last much wider than the preceding, not descending in front; aperture lunar, the lip white, angularly reflected, dextral margin sinuous, columellar arcuate.

Diam. 15 mill.

*Portugal.*

H. GYRIA, Roth. Pl. 23, figs. 91–93.

Moderately umbilicated, depressed, concave above, rather thin, distinctly striulate, somewhat shining, corneous; whorls 7, convex, narrow, the last compressed, scarcely descending in front, base smoothly convex, subangulated around the umbilicus; peristome shortly reflected, whitish. Diam. 14 mill.

*Caria, Lycia.*

H. CORCYRENSIS, Partsch. Pl. 23, figs. 94–96.

Openly umbilicated, costulate-striate above, corneous, hispid; whorls 7, a little convex, narrow, the last obtusely angulated above, gibbous and deflected in front, convex below; peristome flexuous, white-lipped, reflected. Diam. 11 mill.

*Corfu, Cephalonia, Epirus*, etc.

*H. contorta* and *H. tersa*, Ziegler, and *H. ambliostoma*, Parr., are synonyms.

Var. CEPHALONICA, Mouss.

Smaller aperture, narrower, falciform, margins of periphery joined by a thin parietal callus.

*Cephalonia.*

Var. OCTOGYRATA, Mouss.

Larger, a little convex above, whorls 7½–8, the last rounded. Diam. 14 mill.

*Lesina, Dalmatia; Prevesa, Greece.*

Var. CANALIFERA, Anton.

Spire more elate, last whorl more angulated above, aperture narrower, peristome thick, defined by an exterior channel.

*Turkey.*

Var. GIRVA, Friv.

Shell small, aperture coarctate, lip thicker.

*Epirus; Albania.*

H. BARBATA, Fer. Pl. 23, figs. 97–99.

Umbilicus nearly covered, rather thin, costulate-striate above, shortly pilose, brownish corneous; whorls 6, slightly convex, slowly increasing, the last obsoletely angulated above, shortly descending anteriorly, base convex, lightly radiately striate; aperture diagonally subauriform, lip flexuous, narrowly expanded above, reflected below, dilated over the umbilicus. Diam. 13 mill.

*Candia, Balkan.*

H. TARNIERI, Morelet. Pl. 23, figs. 100–2.

Moderately umbilicated, subdiscoidal, brownish corneous, closely costulately striate; whorls 7, a little convex, narrow, spire scarcely emersed, last whorl obtusely angular above, not deflected; aperture obliquely lunar, depressed, the margin callous, angularly reflected. Diam. 12 mill.

*Tangiers.*

H. BOSCÆ, Hidalgo. Pl. 23, figs. 3–5.

Narrowly umbilicated, lenticular, rather thin, closely arcuately striate above, brownish corneous; whorls 6, slowly enlarging, the last obtusely angulated above, not descending anteriorly, constricted below towards the aperture, base convex, smoothish, flattened at the umbilicus; peristome whitish or flesh color, the upper margin very shortly expanded, the basal reflected. Diam. 11 mill.

*Puebla de Rugat* and *Valentia, Spain.*

* * *Carinate species.*

H. LENTICULA, Fer. Pl. 23, figs. 6–8.

Umbilicated, lenticular, carinate, very lightly costulate-striate, opaque, brownish corneous; whorls 5, a little convex, the last scarcely descending in front; peristome flexuous, simple and straight above. Diam. 8·5 mill.

*Southern Europe, Northern Africa eastward to Egypt, Teneriffe, Madeira.*

It is perhaps *H. ferruginea*, Risso.

Var. MAJOR, Mousson.

More depressed, spire flattened, umbilicus a little wider, carina subacute, suture margined above. Diam. 9–10 mill.

Var. VIRILIS, Mousson.

Thicker and heavier, with stronger costulations, crossing the base also, carina subcrenulate; peristome a little reflected and thickened, lipped within, upper margin protracted, more thickened. Diam. 8 mill.

*I. Fuerteventura.*

*H. subtilis*, Lowe, is a synonym.

Var. ANNAI, Paladilhe.

Discoidal, striate rather than costulate, last whorl obtusely angulated, aperture less angular, peristome less flexuous, columellar lip not thickened as in the type.

*Morocco.*

H. LENS, Ferussac. Pl. 14, figs. 12–14.

Openly umbilicated, lenticular, sharply carinate, costulate-striate above, very rarely pilose, brownish corneous; whorls 7, subequal, planulate; peristome white, the upper margin simple, straight, the dextral and basal reflected, with a punctiform callus at the superior insertion. Diam. 13 mill.

*Morea and the Grecian Islands.*

*H. barbata*, Desh., is a synonym.

Var. LENTIFORMIS, Ziegler.

Smaller, with narrower umbilicus, and more obtuse carina.

*Attica.*

Var. PILIGERA, Blanc.

*Eubœa.*

Var. CALLOJUNCTA, Blanc.

*Lepanto.*

Var. ALIOSTOMA, Westerl.

More narrowly umbilicated, shining, distantly arcuately costate, peristome slightly reflected. Diam. 13 mill.

*Corfu.*

H. LENTICULARIS, Morelet. Pl. 24, figs. 15–17.

Umbilicated, lenticular, acutely carinated, costulately striate above, fulvous corneous; whorls 7, slowly enlarging, the last compressed at the carina, spire scarcely elevated; peristome simple above, the base white, thickened, reflected. Diam. 17 mill.

*Fez, Tangiers, N. Africa.*

H. BARBULA, Charp. Pl. 24, figs. 18–20.

Openly umbilicated, lenticular, carinate, corneous, closely lightly costulate; whorls 6, flattened, the last constricted in front, not descending; aperture lunately trisinuate; peristome flexuous, reflected at the base, white lipped and two-toothed. Diam. 11 mill.

*Portugal, Azores.*

It is *H. bituberculata*, Fer. (teste Morelet), *H. Guerini*, Anton, *H. holosericea*, Graells.

H. CALPEANA, Morelet. Pl. 24, figs. 21–23.

Narrowly umbilicated, lenticular, acutely carinated, thinly costulate-striate, fulvous corneous; whorls 7½, flattened, narrow, subequal, base convex; aperture narrow, peristome simple and straight above, sinuous and reflected below. Diam. 11 mill.

*Gibraltar.*

It is *H. finitima*, Fer.

H. MAROCCANA, Morelet. Pl. 24, figs. 24–26.

Umbilicated, acutely carinated on all the whorls, thin, subpellucid, lightly costulate-striate, brownish corneous; whorls 8, narrow; lip white. Diam. 17–18 mill.

*Tetuan, Morocco.*

H. TURRIPLANA, Morelet. Pl. 24, figs. 29–31.

Umbilicated, solid, granularly scabrous, corneous; whorls 6–6½, exserted, carinate, subchanneled at the suture, last whorl scarcely descending in front, base a little convex, sulcate, deeply biscrobiculate toward the aperture; aperture rostrate at the carina; peristome white-lipped, joined by a callus, superiorly expanded, basally bidentate. Diam. 15 mill.

*Portugal.*

H. Tlemcenensis, Bourg. Pl. 24, figs. 35–37.

Perforate, scarcely convex above, lightly acutely striated, thin, fragile, corneous, subpellucid; whorls 5, slowly increasing, rounded below, peristome subangulated; exterior margin of aperture unidentate, basal margin planulate or arcuate, lip white, lightly reflected. Diam. 8 mill.

*Tlemcen, Algiers.*

*H. Pechaudi*, Bourg. (unfigured), is probably a variety.

H. Rangiana, Fer. Pl. 24, figs. 32–34.

Openly umbilicated, lenticular, acutely carinated, corneous, closely radiately striate; whorls 6½, a little convex; peristome simple, sinuated above, uncinately recurved at the carina, basal margin thickened, reflected, unidentate, scrobiculate externally. Diam. 12 mill.

*Pyrenees.*

H. constricta, Boubée. Pl. 24, figs. 38–40.

Umbilicated, rather thin, closely arcuately costulate, brownish, not shining; whorls 5½, slightly convex, slowly increasing, the last obsoletely angulated above, inflated below, not descending in front, constricted below at the aperture; umbilicus narrow; peristome whitish, its margins connected by a parietal lamina, upper margin sinuated, expanded, basal margin narrowly reflected. Diam. 6.75 mill.

*Basque provinces, Spain.*

*H. Pittorrii*, Dupuy, is a synonym.

H. Buvinieri, Michaud. Pl. 24, figs. 43–45.

Umbilicus closed, shell light corneous, regularly, elegantly, distantly sulcate; whorls 8, moderately increasing, the last subcarinate, convex and very lightly striate below; aperture compressed, obtusely dentate below, peristome margined within, reflected, rosy white. Diam. 10 mill.

*Asturia.*

*H. Asturica*, Pfr., is a synonym.

H. Gougeti, Terver. Pl. 24, figs. 46–48.

Somewhat covered perforate, corneous, costulate-striate; whorls 7, very narrow, a little convex, the base more convex, striulate; peristome shortly reflected, white callused within, basal margin slightly curved, unidentate. Diam. 9 mill.

*Algiers; Asturia.*

*Unfigured Species.*

H. SUPRACOSTATA, Kobelt. *Tetuan, Morocco.*

H. CAMERANI, Lessona. *Piedmont, Italy.*

H. LENTINA, Martens. *Turkestan.*

*Canarian Species.*

H. HISPIDULA, Lamarck. Pl. 25, fig. 70.

Narrowly umbilicated, carinate, sharply striulate, somewhat hispid, brownish corneous; whorls 5, a little convex, the last not descending, the carina obtuse, not compressed or serrulate, base narrowly rounded at the umbilicus; aperture oblique, the upper margin of the peristome straight, basal margin a little thickened, reflected. Diam. 10 mill.

*Ins. Teneriffe and Gomera.*

Var. SUBHISPIDULA, Mousson.

A little more depressed and fragile, lighter colored, almost without hairs, distinctly plicate-striate at the periphery, the carina more acute.

Var. BERTHELOTI, Fer.

Openly umbilicated, subopaque, brownish- or greyish-corneous, with oblique thin crispate-plicate striæ, hairy, whitish below, carina not acute. Diam. 13 mill.

H. AFFICTA, Fer. Pl. 24, figs. 52–54.

Narrowly umbilicated, light corneous with a somewhat acute white carina, obliquely striate, sometimes a little scaly, suture superficial, submargined above the carina; whorls 6, slowly increasing, almost flat, at first hairy-scaly, afterwards striate, last whorl not descending, declining above, carina smoothish, compressed; base conically plane, strongly striate in front, angulated at the white umbilicus; peristome thin, a little reflected, the margins joined by a thin lamina, upper margin straight, exterior and basal margins white, subreflected. Diam. 13 mill.

*Ins. Palma, Teneriffe.*

H. PLANARIA, Mousson. Pl. 24, figs. 58–60.

Flattened, subpellucid, the carina very acute, whitish; whorls and suture all plane, regularly striate, not scaly; base planely conical, obtusely angulate at the moderate white umbilicus.

*Ins. Teneriffe and Palma.*

Pfeiffer considered this a variety of the preceding species.

H. DISCOBOLUS, Shuttleworth. Pl. 24, figs. 41, 42.

Narrowly, profoundly umbilicated, discoidal, much depressed, very acutely carinate, somewhat solid, strongly plicate-costulate, corneous; whorls 6, flat, compressed, with impressed line above the carina, not descending in front, base obtusely angulated around the umbilicus; peristome acute, upper margin straight, the basal a little reflected, the columellar thickened, with a small tubercle.

Diam. 18 mill.

*Canary Islands.*

It is *H. afficta*, Orb., not Fer.

H. FORTUNATA, Shuttlew. Pl. 24, figs. 55–57.

Moderately umbilicated, thin, scarcely shining, very closely irregularly striate, corneous brown; whorls 5½, almost flat, with a more or less distinct impressed peripheral line, last whorl a little wider than the penultimate, carinate, subdilated and scarcely descending in front, base more convex; lip subexpanded, acute above, curved, reflected and a little thickened below. Diam. 14 mill.

*Teneriffe.*

H. PTHONERA, Mabille. Pl. 38, figs. 7–9.

Umbilicated, solid, costulate, dull reddish corneous, with very caducous short hairs, subgranular; whorls 6, a little convex, regularly increasing, with well-impressed suture, periphery angulated; peristome a little thickened and reflected, margins converging, joined by a thin parietal lamina. Diam. 7·5–8 mill.

*Teneriffe.*

H. EVERIA, Mabille. Pl. 38, figs. 4–6.

Narrowly umbilicated, thin, striate, with caducous short hairs, yellowish brown; whorls 5, the last rapidly increasing, suture narrowly impressed, periphery obtusely angulated; peristome a little reflected, sublabiate with white, partly covering the umbilicus.

Diam. 10 mill.

*Teneriffe.*

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*Unfigured and Undetermined Species.*

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|---|---|
| H. MARCIDA, Shuttlew. | *? Canary Islands.* |
| H. CRISPO-LANATA, Wollaston. | *Ins. Palma.* |
| H. BEATA, Wollaston. | *Fuertoventura.* |
| H. GOMERÆ, Wollaston. | *Ins. Gomera.* |

*Chinese species.*

H. DIPLOMPHALA, Mollendorff. Pl. 25, figs. 61–63.

Widely umbilicated, thin, obliquely striulate, corneous, hirsute in transverse series, spire concave; whorls 6½–7, a little convex, narrow, the last laterally compressed and shortly deflected at the aperture; peristome slightly reflected, sinuate, extremities joined by a slight parietal callus. Diam. 11 mill.

*China.*

H. BINODATA, Mollendorff. Pl. 25, figs. 64–66.

Moderately umbilicated, striulate, corneous; whorls 6, subplanate, periphery angulated, last whorl deflected at the aperture, umbilical region defined by an obtuse angle; peristome expanded, a little reflected, white, trisinuate within, with a superior and a basal tooth. Diam. 7 mill.

*China.*

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H. ACANTHINULA, Crosse. Pl. 25, fig. 71.

Moderately umbilicated, thin, pellucid, not shining, with irregular, close, oblique, rugulose striæ, olivaceous under a blackish epidermis; whorls 3½, flattened, the penultimate obsoletely carinated, the last not descending, tricarinate, with short, distant fringes; aperture olivaceous, peristome simple. Diam. 4·5 mill.

*Noumea, N. Caledonia.*

Placed in this group by Pfeiffer, but does not well agree with its characters.

Section II. POLYGYRA, Say, 1817.

Subsection I. POLYGYRATIA, Gray, 1847.

H. POLYGYRATA, Born. Pl. 25, figs. 72–74.

Very widely umbilicated, plane above, excavated below, solid, striate, subdecussated by minute concentric lines, greenish yellow, with a wide brownish band above; whorls 9, the last descending in front; lip white, shortly reflected. Diam. 46 mill.

*Brazil.*

Var. CHARYBDIS, Mörch.

Whorls 7½, wider, umbilicus deeper and narrower. Diam. 38 mill.

H. STENOGYRA, Pfr. Pl. 25, figs. 75–80.

Very widely umbilicated, somewhat solid, closely arcuately striated, a little shining, diaphanous, light corneous, spire subim-

mersed; whorls 10½, narrow, slightly convex, the last much wider, subdepressed, scarcely descending in front, all wider below; umbilicus more than half the diameter of the base; aperture subdiagonal, the lip scarcely expanded, white margined within. Diam. 25 mill.

*Moyobamba, Peru.*

*H. decagyra*, Martens, and *H. helicycloides*, Pfr. (figs. 78–80), are synonyms; the latter a minor variety.

H. HELIGMOIDEA, Orbigny. Pl. 25, figs. 81–83.

Very widely umbilicated, smooth, yellowish corneous; whorls 9, slightly convex; aperture obliquely semioval, sinuous, peristome shortly reflected, dentate within, the extremities connected by a dentiform callus. Diam. 13 mill.

*Guayaquil, Columbia.*

H. CALCULINA, Pfr. Pl. 25, figs. 84–86.

Very widely umbilicated, thin, striulate, yellowish corneous, obsoletely strigate with chestnut; whorls 8½, convex, very narrow, the last not descending, superiorly and basally subangulated; lip simple, straight. Diam. 10 mill.

*Hab. unknown.*

First described as *H. calculus*, Pfr., a name preoccupied by Lowe.

H. POLYCYCLA, Morelet. Pl. 25, figs. 87–89.

Very widely umbilicated, closely striate, slightly shining, light corneous; whorls 7, convex, with deep suture, slowly increasing; aperture diagonal, obliquely semilunar, lip simple, straight, sinuate above. Diam. 15 mill.

*Peru.*

H. TORTILIS, Morelet. Pl. 25, figs. 90–92.

Very widely umbilicated, thin, diaphanous, light corneous, slightly shining; whorls 7, slightly convex, narrow, with deep suture; aperture obliquely rounded-lunar, lip straight, shortly rounded above. Diam. 11 mill.

*Urubamba, Peru.*

H. DECAGYRA, Phil. Pl. 25, figs. 93–95.

Widely umbilicated, thin, scarcely striated, spire nearly plane, or slightly convex, yellowish corneous; whorls 11, narrow, the last depressed at the aperture; aperture somewhat oblique, the lip thin acute. Diam. 10·5 mill.

*Peru.*

H. GYRELLA, Morelet. Pl. 25, figs. 96–98.

Very widely umbilicated, thin, closely covered by hair-like striæ above and below, livid corneous, base paler; whorls 5½, slightly convex, with deep suture, the last depressed, not descending in front; aperture scarcely oblique, rounded, the lip simple, straight, Diam. 10 mill.

*Urubamba, Peru.*

H. PSEUDO-PLANORBIS, Lubomirski. Pl. 26, figs. 1–3.

Very widely umbilicated, planorboid, closely obliquely striated, epidermis light yellowish brown, suture deep; whorls 6–7, the last not descending; peristome simple. Diam. 16·5 mill.

*Pujupé, Peru,* 10,000 ft. alt.

H. WALLISIANA, Mousson. Pl. 26, figs. 19–21.

Widely umbilicated, thin, striate, diaphanous, yellowish corneous, suture well impressed; whorls 6, slowly increasing, convex, the last scarcely wider, not descending, declining above near the aperture; base more convex; aperture obliquely lunar, with a deep-seated basal lamella, lip straight, obtuse, margins joined by a thin lamella. Diam. 11 mill.

*? Central America.*

H. POLLODONTA, Orb. Pl. 26, figs. 4–6.

Widely umbilicated, somewhat solid, closely plicate, greenish corneous; whorls 7, slightly convex, the last dilated and deflected in front; aperture oblique, lip unidentate, the tooth continued and connected with four others one-fourth of a whorl within, lip thickened and reflected below. Diam. 9 mill.

*Bolivia.*

H. ENTODONTA, Pfr. Pl. 26, fig. 9.

Widely umbilicated, rather solid, densely striated, pellucid, whitish hyaline; whorls 7½, convex, very narrow, the last irregular, flattened in front, with three interior teeth, dilated, scarcely descending; aperture diagonally ear-shaped, the margin shortly reflected, flexuous. Diam. 6·5 mill.

*Cuenca, Equador.*

H. HELICYCLOIDES, Orbigny. Pl. 26, figs. 10–12.

Very widely umbilicated, somewhat thin, obliquely striulate, subdiaphanous, shining, greyish yellow; whorls 10, convex, very narrow, the last of double width, descending in front, with a flat

cicatrix near the aperture; aperture obliquely subtriangular, lip shortly reflected, the margins distant, subdepressed above, no internal teeth. Diam. 13–20 mill.

*R. Maranon, Columbia; Bolivia.*

H. SYSTROPHA, Albers. Pl. 26, figs. 22–24.

Widely umbilicated, thin, striulate, scarcely shining, corneous; whorls 12, convex, very narrow, the last whorl a little wider, scarcely descending in front, base inflated; aperture diagonal, lunar, the lip very shortly reflected. Diam. 13·5 mill.

*R. Maranon, Columbia.*

H. ORTONI, Crosse. Pl. 26, figs. 14, 15.

Very widely umbilicated, smoothish, obsoletely obliquely striulate, light yellowish corneous, suture deep; whorls 9, a little convex, the last suddenly descending; aperture obliquely semioval, subsinuous, lip white, slightly thickened, shortly reflected, slightly scrobiculate without, unidentate within. Diam. 16 mill.

*Equador.*

H. REYREI, Souverbie. Pl. 26, fig. 13.

Widely umbilicated, yellowish corneous, closely obliquely costulate; whorls 5, a little convex, periphery subangulate, the last whorl gibbous in front; aperture diagonal, reniform, deeply four-tuberculated, lip shortly reflected, the margins joined by a trigonal dentiform callus. Diam. 5·5 mill.

*Guayaquil.*

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H. MACGREGORI, Cox. Pl. 26, figs. 7, 8.

Very widely umbilicated, plane above, widely excavated below, light yellowish brown; whorls 10–11, slowly increasing, roughly striate, last whorl with carinate periphery, convex base, and a little dilated and reflected anteriorly, suture margined; aperture somewhat obliquely rounded-ovate, lip slightly thickened, not reflected. Diam. 23 mill.

*New Ireland.*

H. MULTISPIRATA, Hombr. et Jacq. Pl. 26, figs. 16–18.

Umbilicated, smooth, greyish corneous, spire plane; whorls 6½, convex, narrow, the last not descending, rounded; aperture lunate, with straight margin, basally a little thickened. Diam. 3·5 mill.

*Ins. Vavao.*

H. MICROPHIS, Crosse. Pl. 26, figs. 25, 26.

Planorbiform, very widely umbilicated, longitudinally striate, olivaceous corneous, suture impressed; whorls 4½, narrow, the last descending in front; aperture auriform, narrow, whitish, peristome continuous, white, thick, the parietal callus rising into a central tooth. Length, 13·4 mill.

*Noumea, New Caledonia.*

An aberrant form for which Mr. Ancey has recently proposed a sectional name, *Microphyura.*

H. RAFFRAYI, Tapparone-Canefri. Pl; 26, figs. 99, 100.

Widely, deeply umbilicated, showing all the whorls, shell conical above, whorls flat, periphery sharply angulated, base convex; longitudinally striate, diaphanous; ashy corneous, the carina fulvous; whorls 10½, the last deflected and subconstricted at the aperture; aperture obliquely subquadrangular, periphery expanded, the margins joined by a parietal callus. Diam. 10 mill.

*New Guinea.*

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*Unfigured Species.*

H. PLATYGYRA, Albers. *R. Maranon, Columbia.*

H. STENOSTREPTA, Pfr. *Tarapoto, Andes of Peru.*

Subsection II, POLYGYRA, Say, 1817.

H. CHEILOSTROPHA, Orbigny. Pl. 26, figs. 32–34.

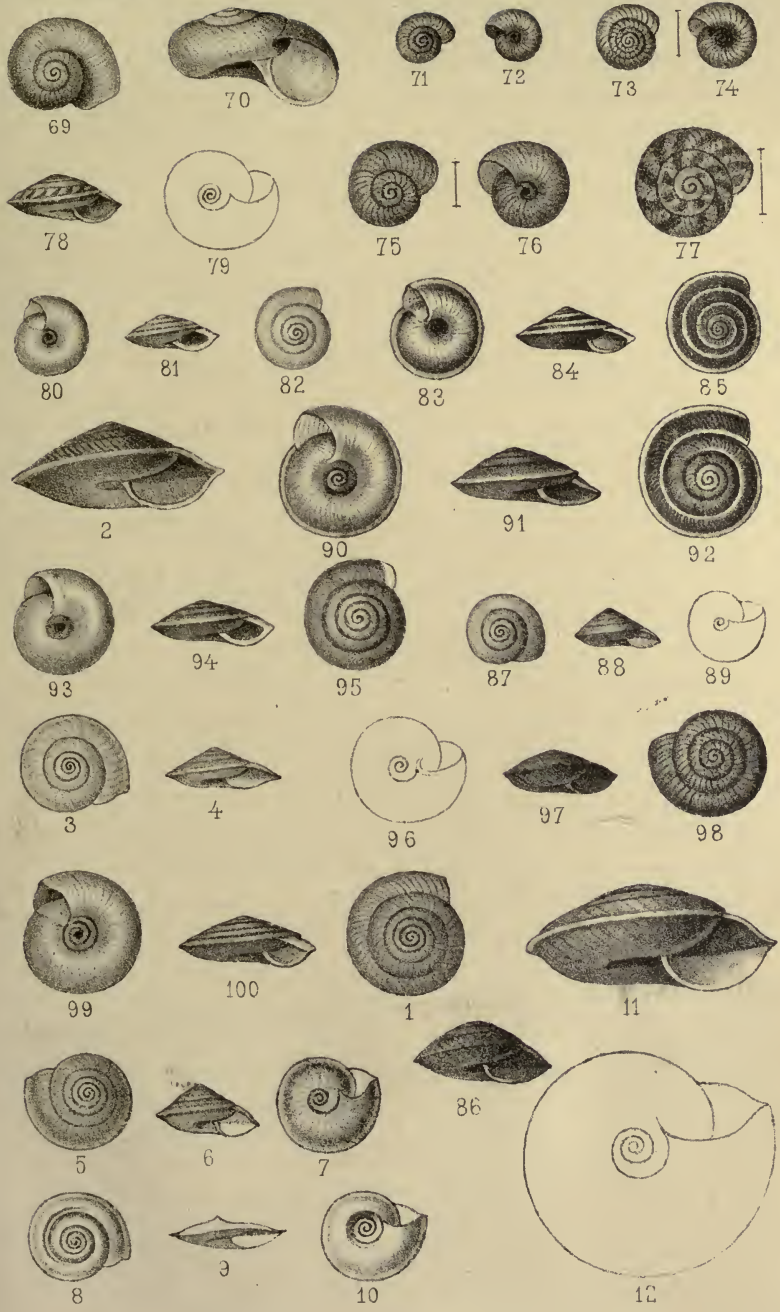
Widely umbilicated, closely plicate, brownish; whorls 6½–7, moderately convex, the last dilated in front and scarcely deflected; aperture a little oblique, trisinuately lunar, lip shortly reflected, bidentate within, with a large tongue-like lamina joining its extremities. Diam. 8 mill.

*Sta. Cruz de la Sierra, Bolivia.*

H. CEREOLUS, Muhlfeldt. Pl. 26, figs. 27–31; Pl. 27, figs. 35–42.

Umbilicated, subdiscoidal, showing the whorls above and below, obliquely striate, whitish or light corneous, sometimes with radiating, opaque white maculations; whorls 5–12, narrow, the last scarcely descending, with obtusely angulated periphery; aperture diagonal, reniform, peristome thickened, lip angularly reflected, the margins joined by a triangular tooth-like parietal callus, parietal wall often with a deep seated lamina. Diam. 9–15 mill.

*Georgia, Florida–Louisiana, Bermuda, Bahamas.*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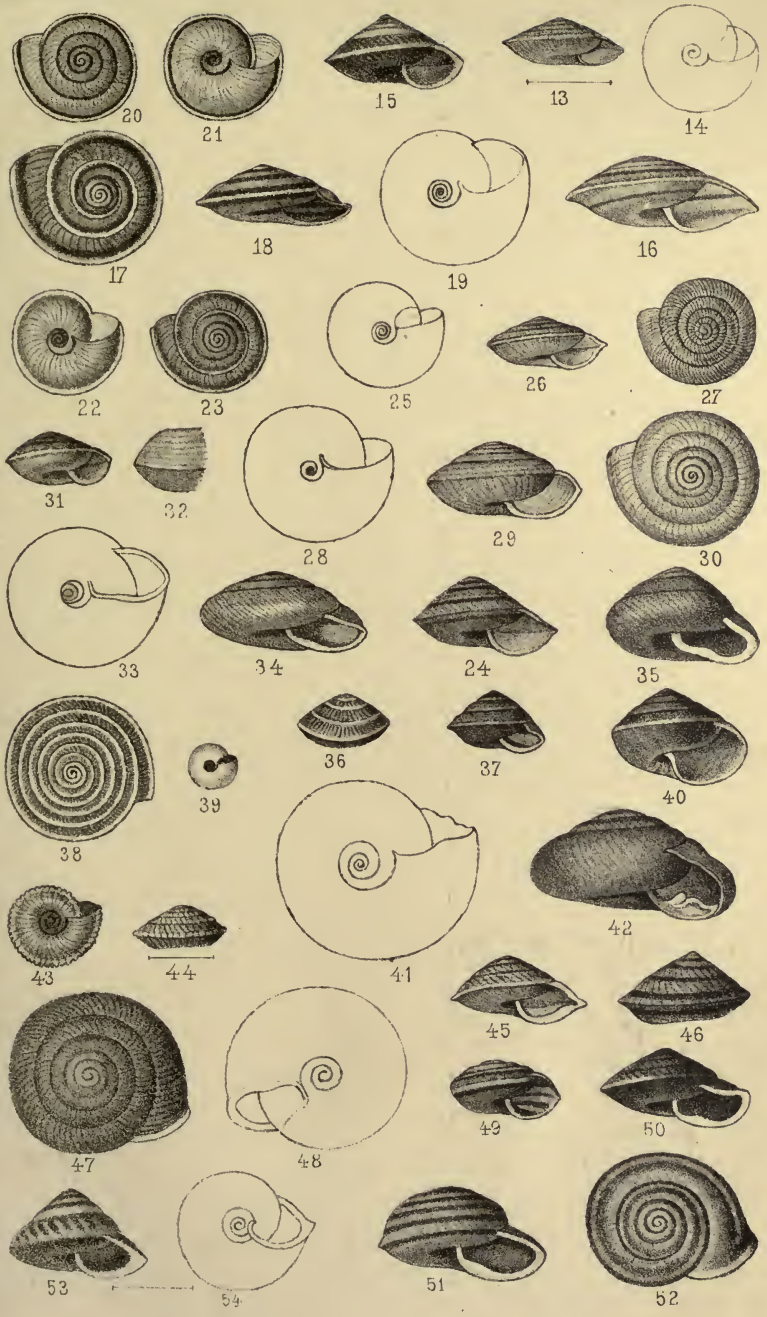
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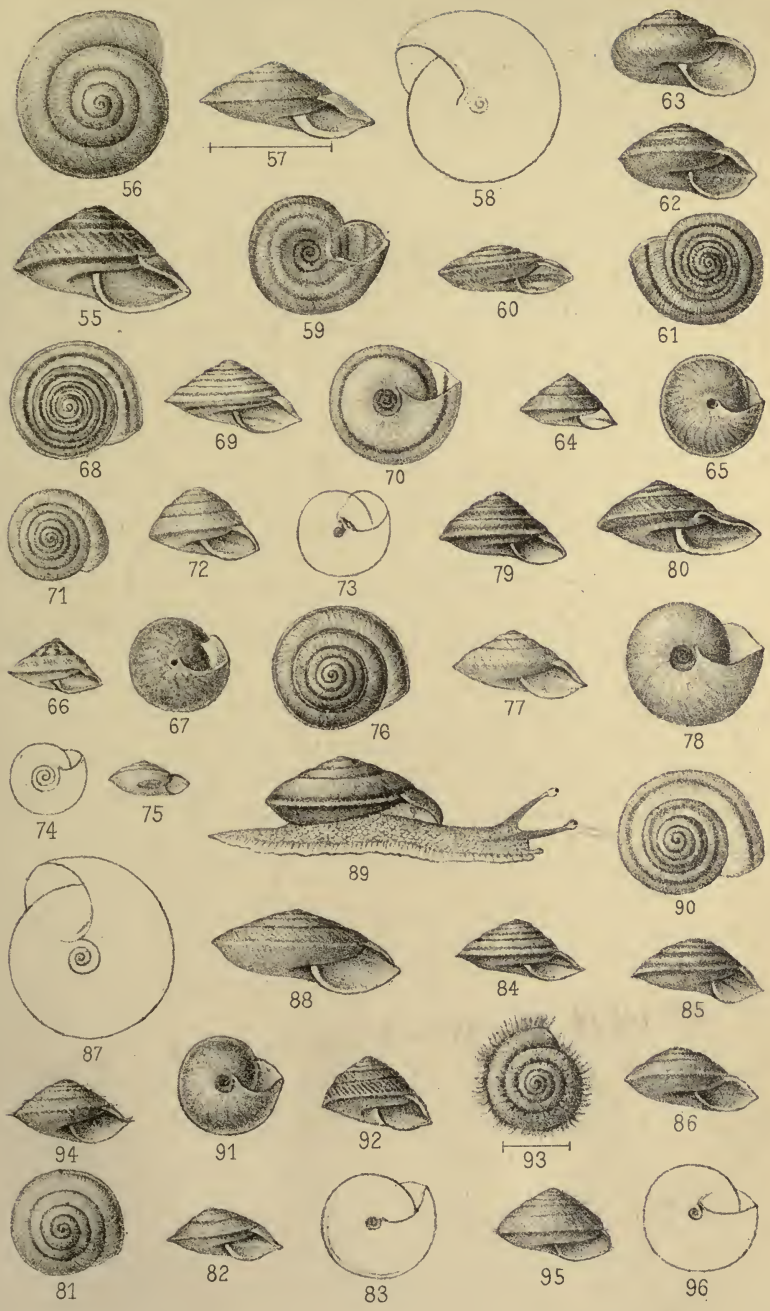
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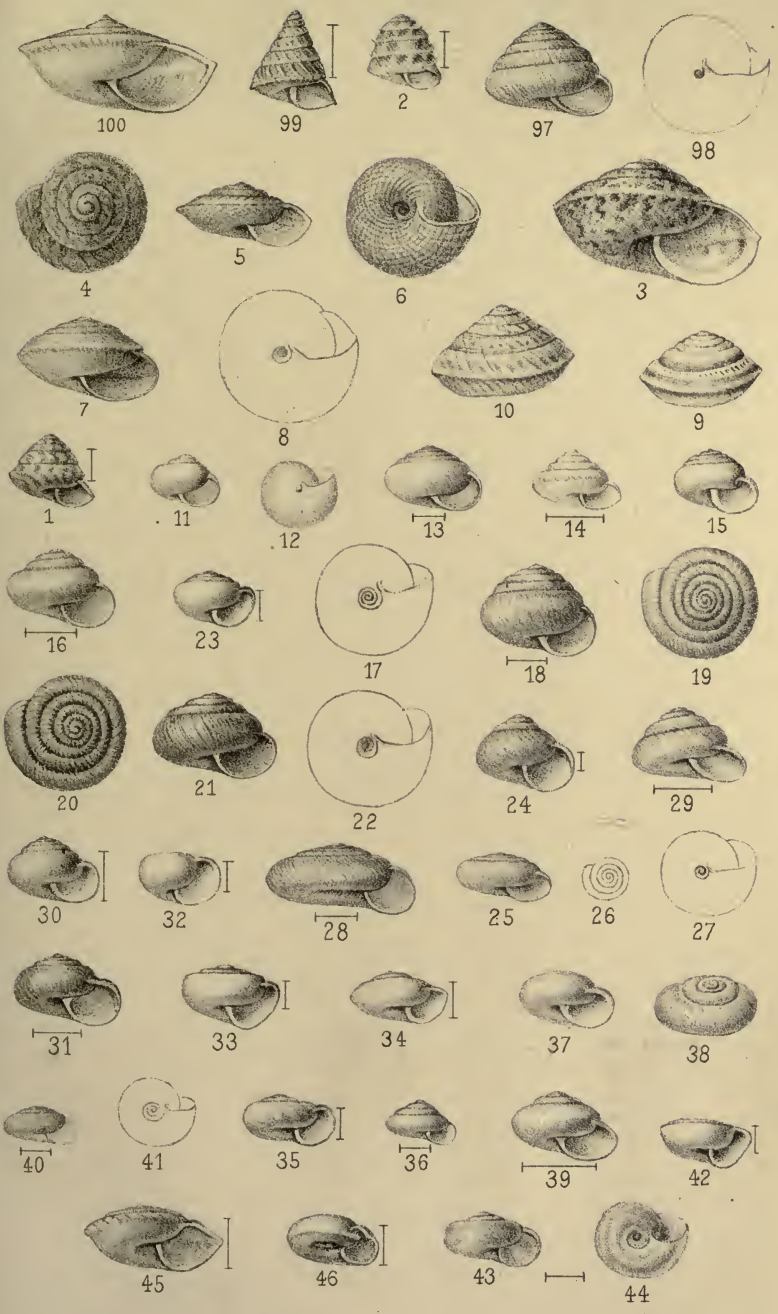
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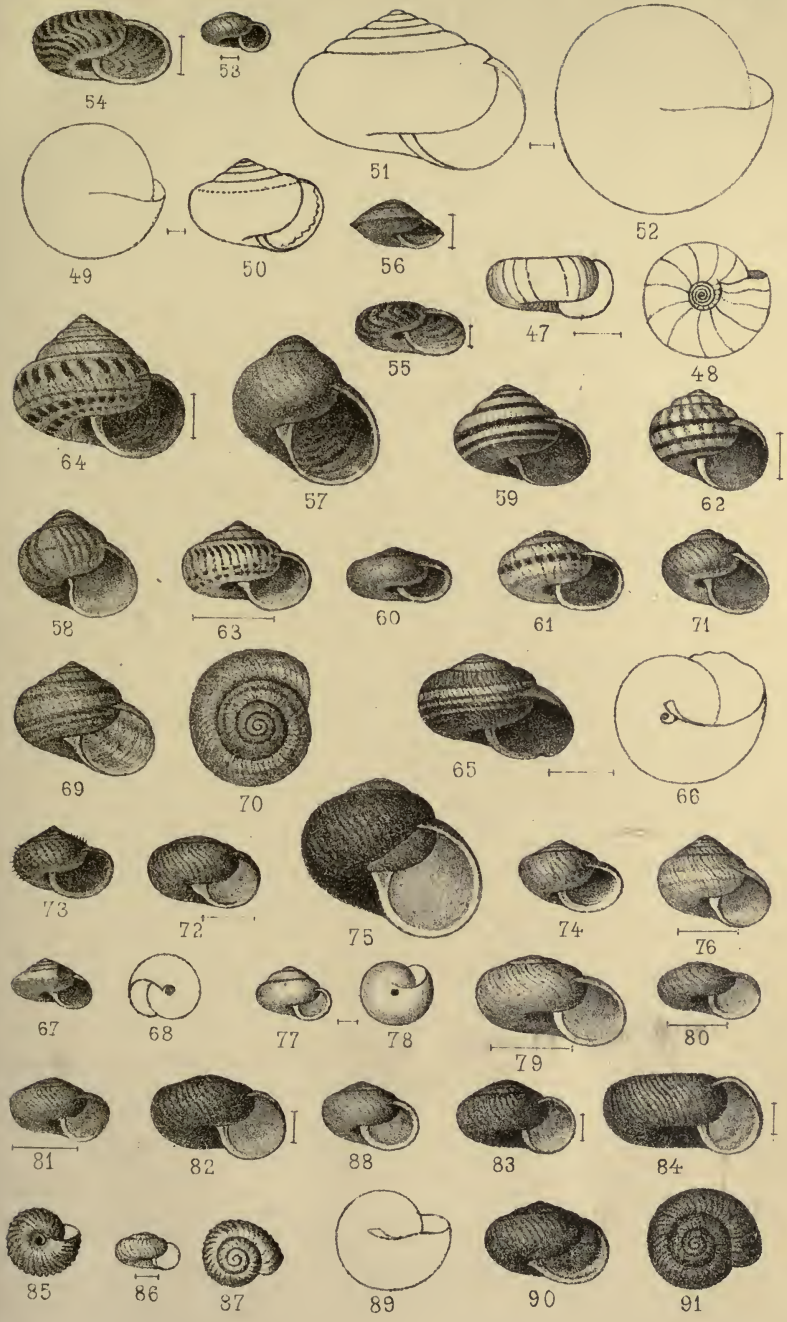
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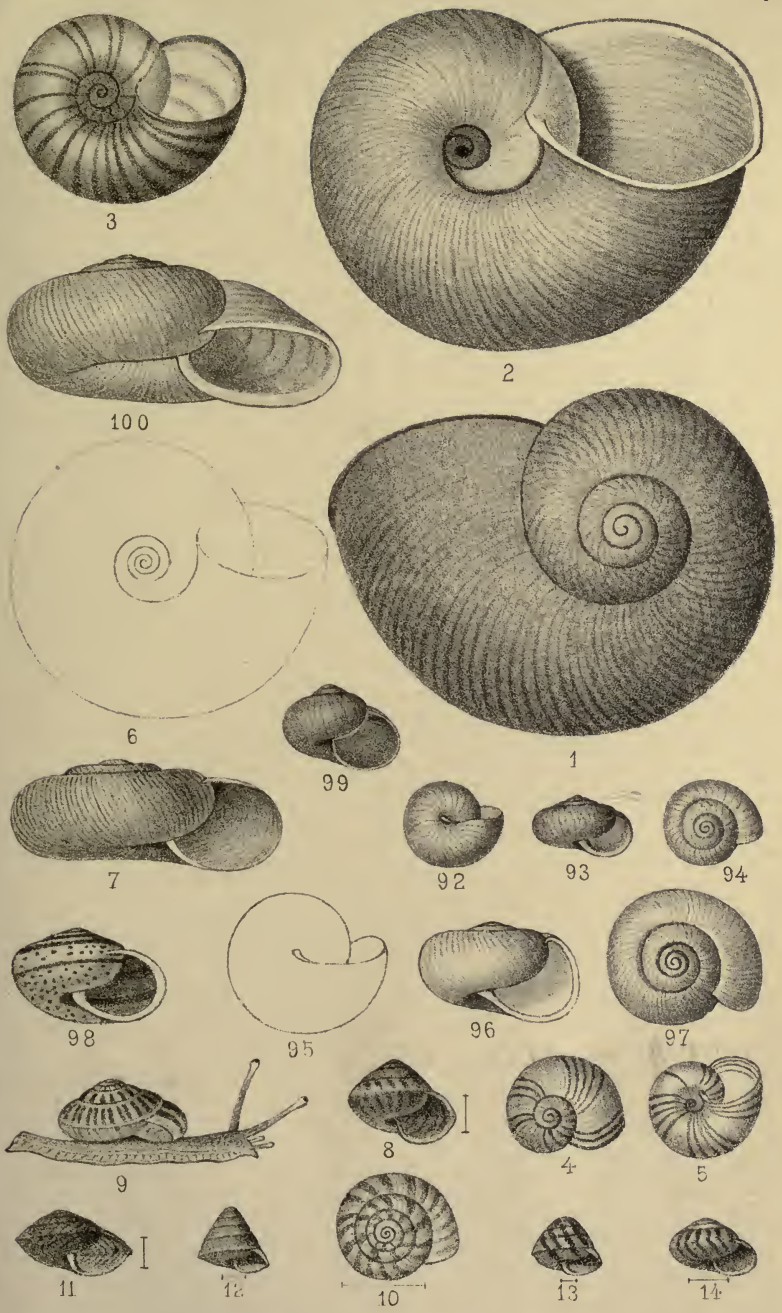
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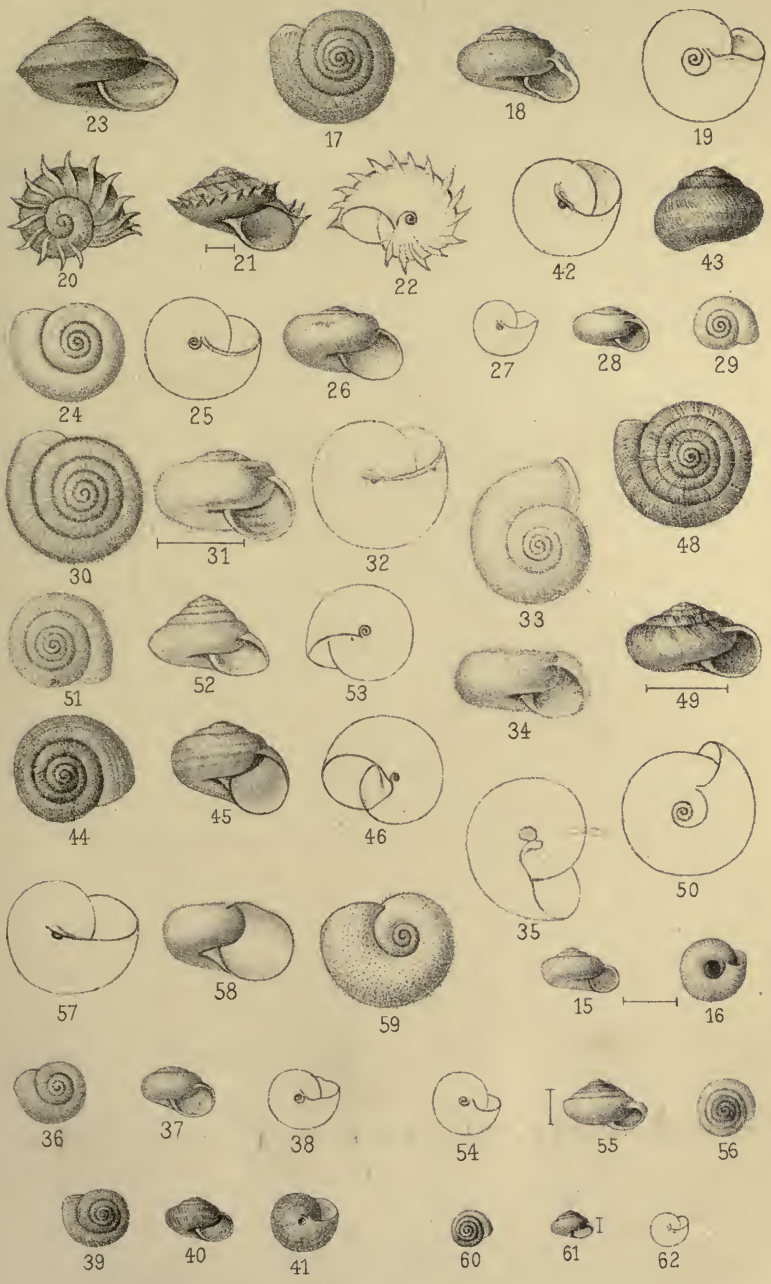
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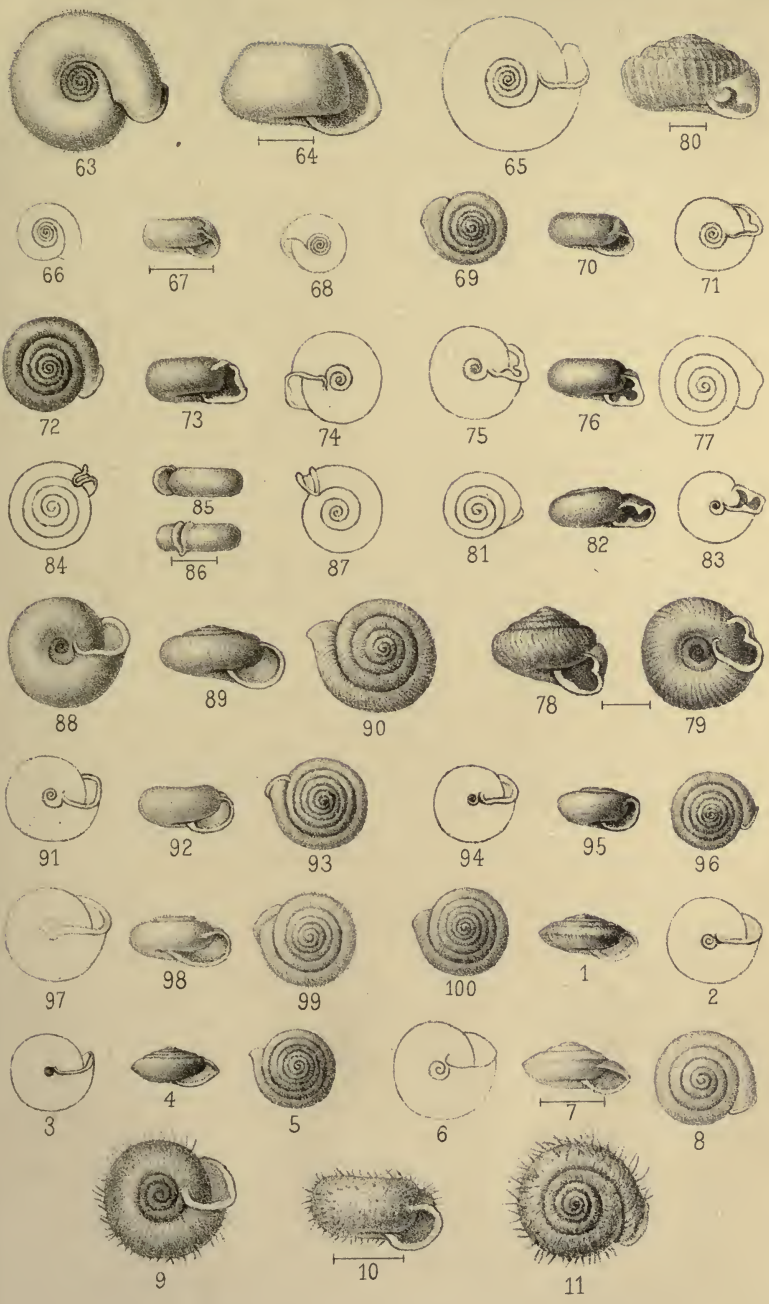
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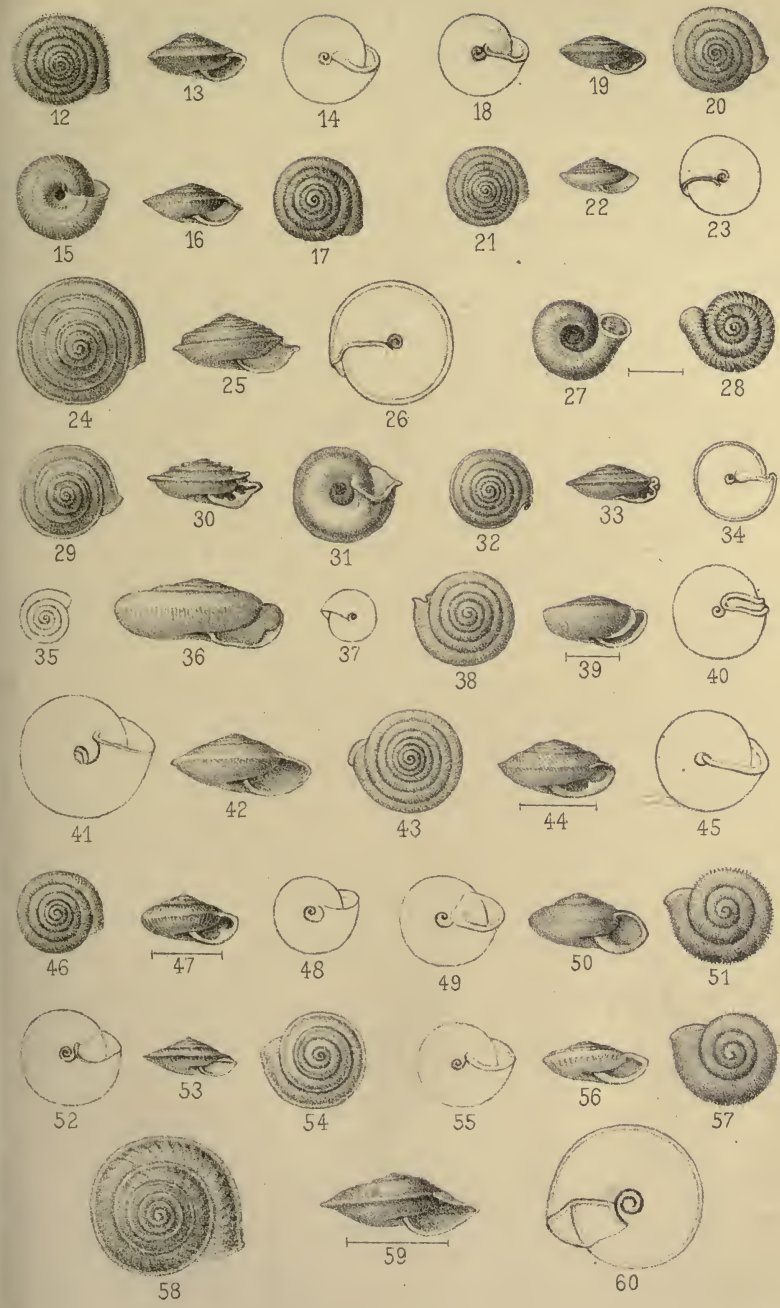
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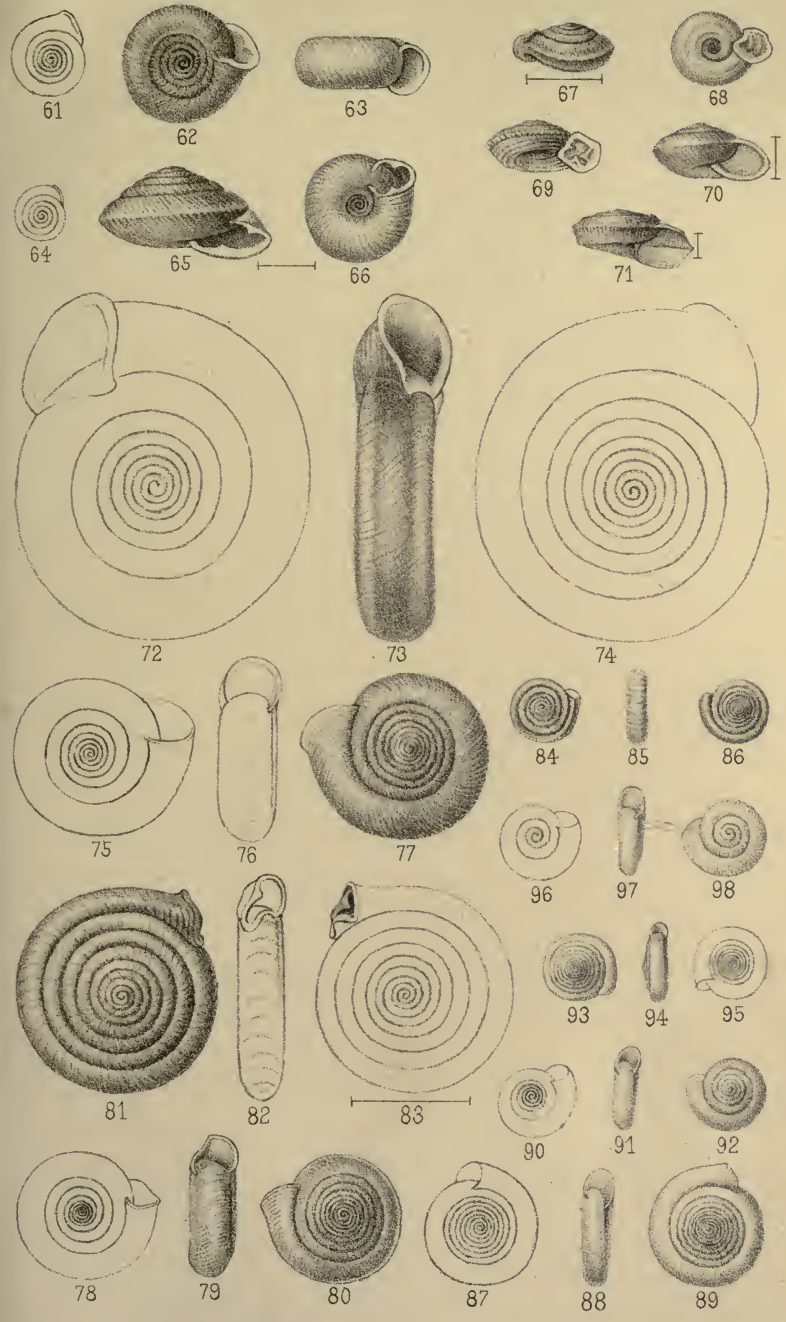
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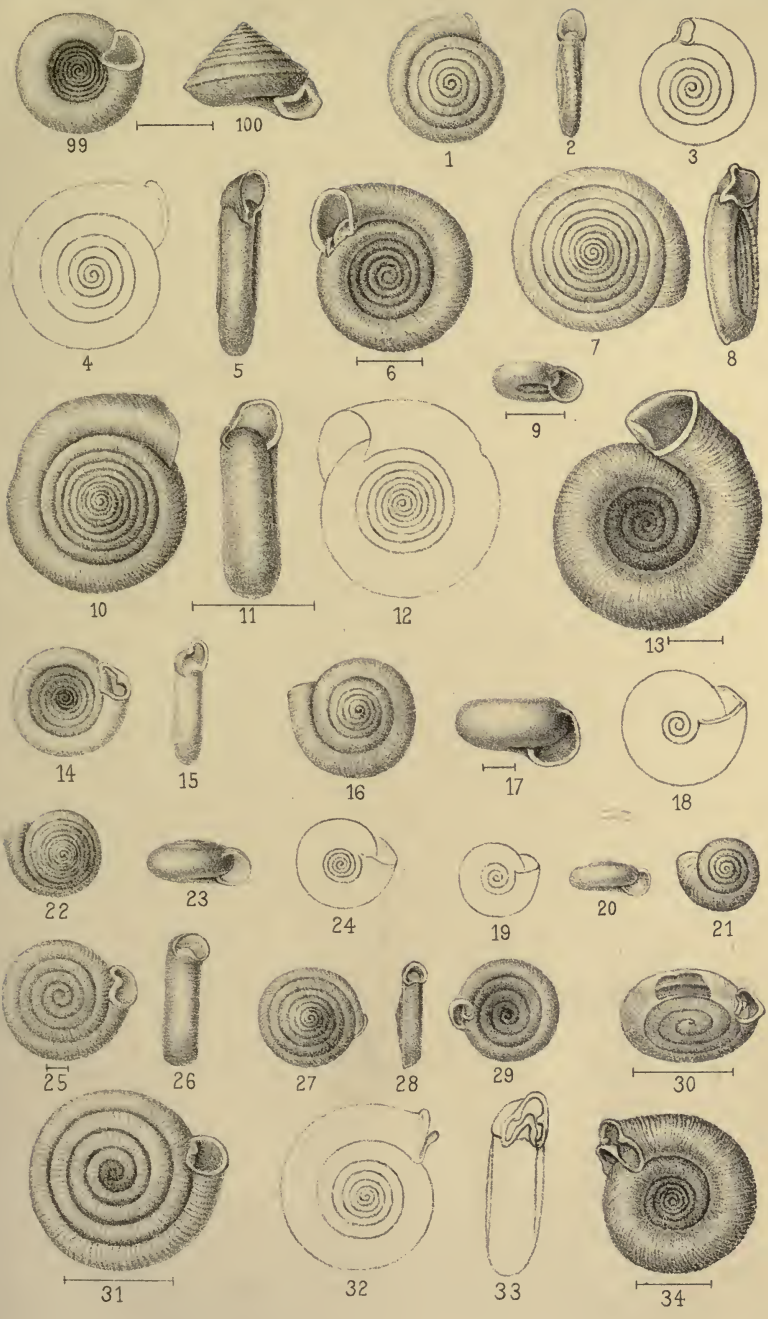
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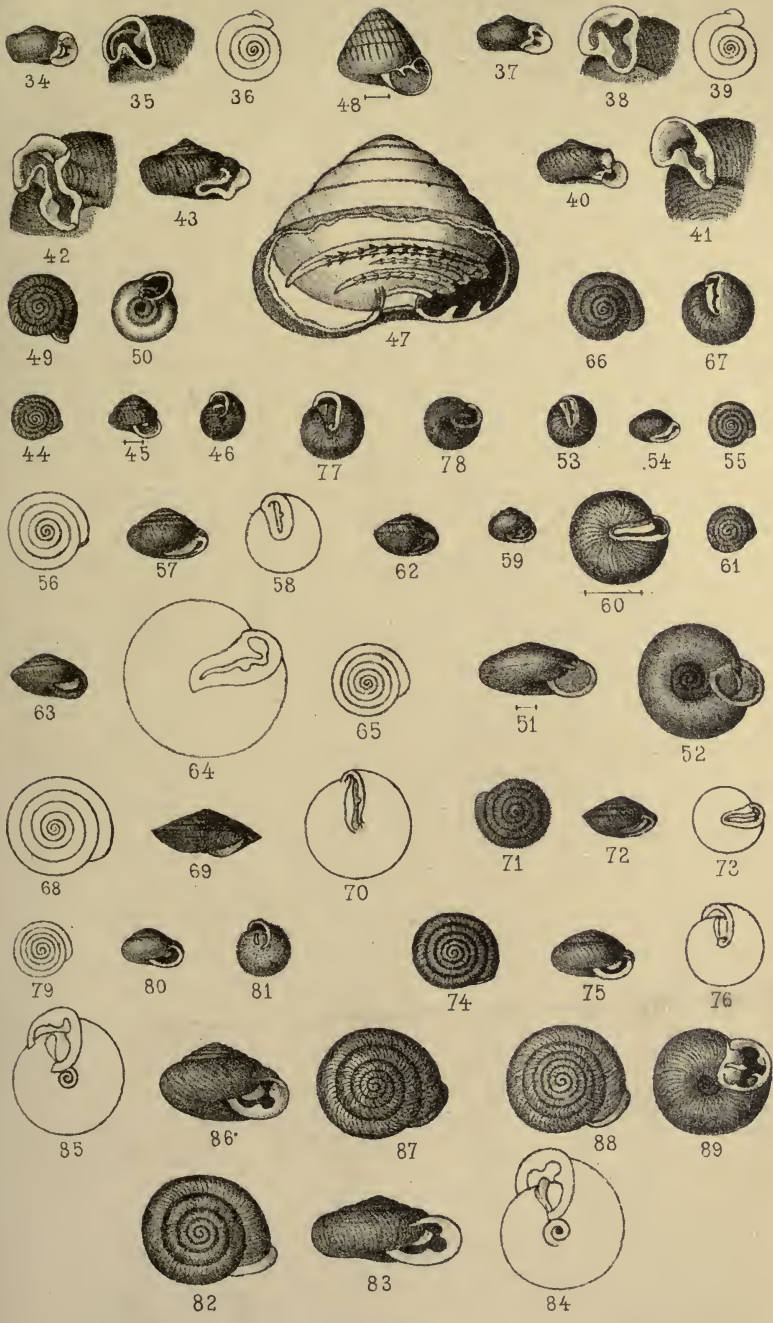
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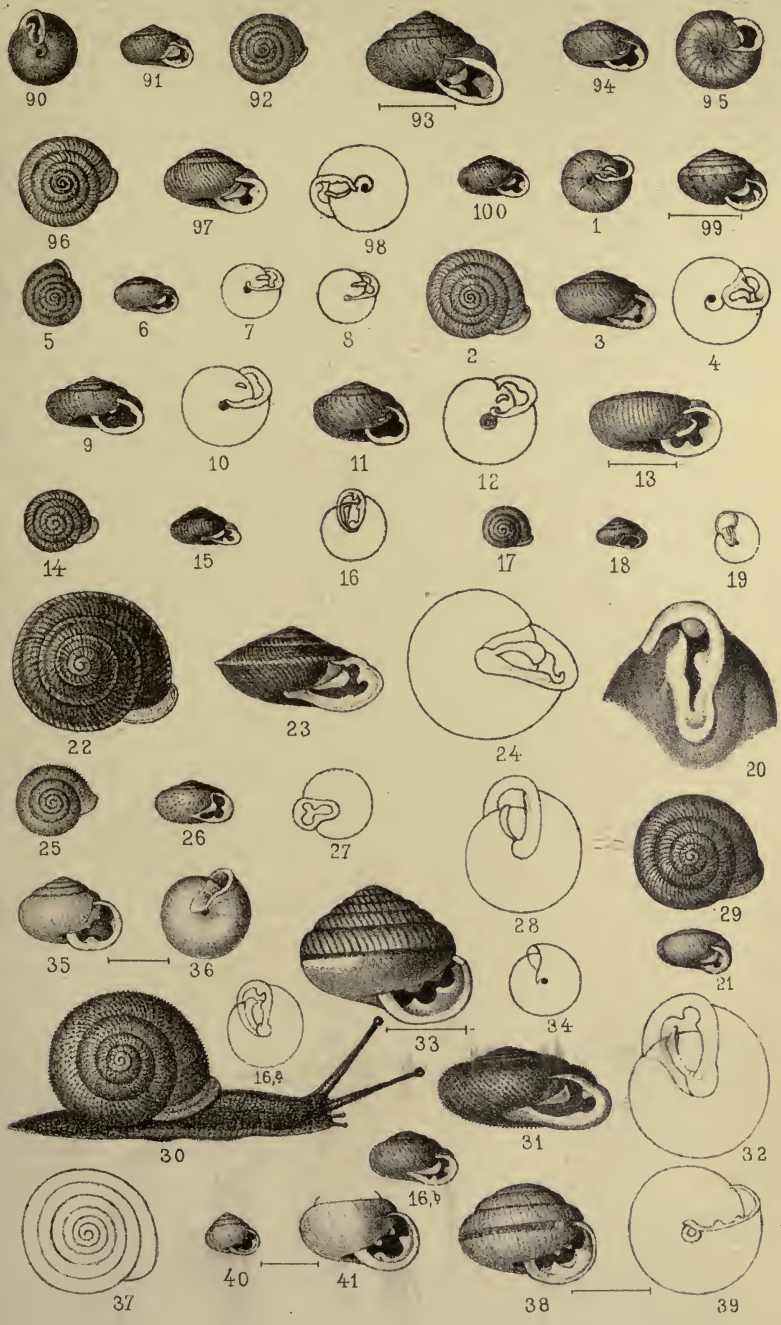
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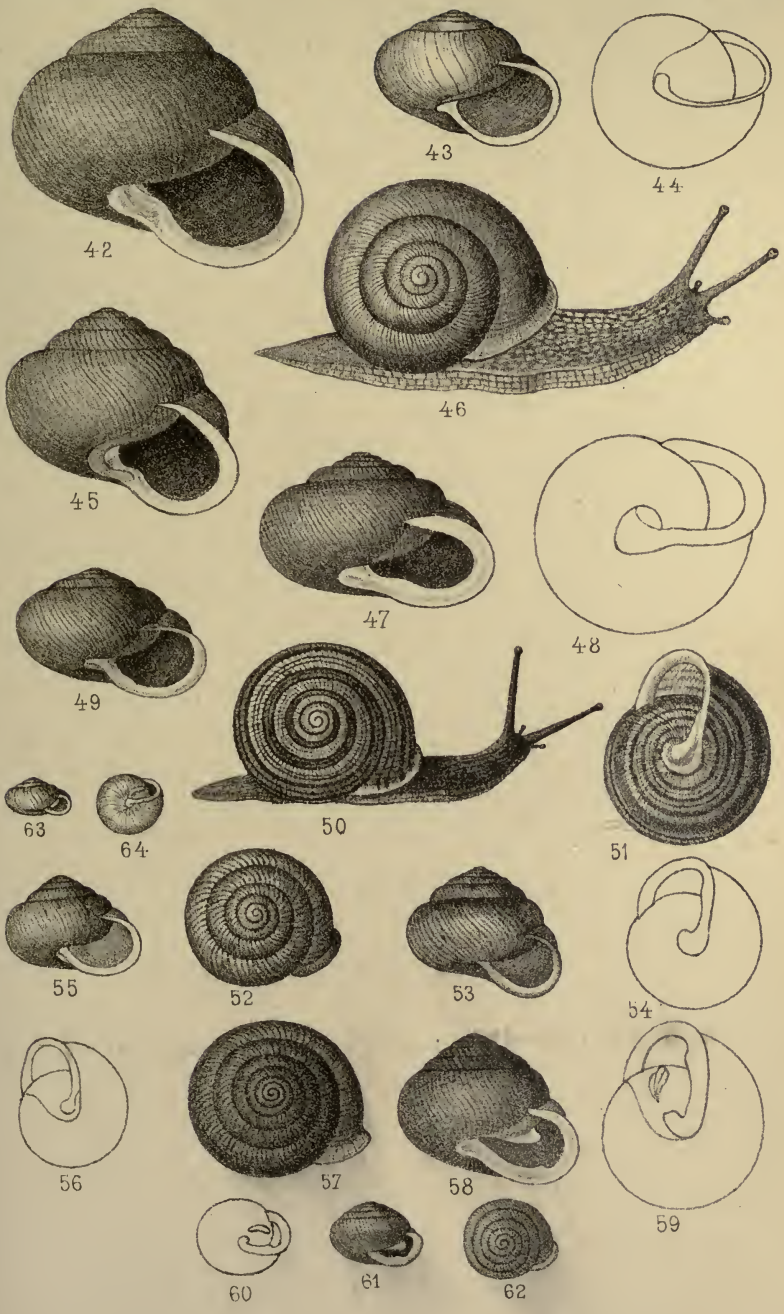
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A species inhabiting the neighborhood of the sea, and very variable in its growth, so as to have given rise to several synonyms. These several forms have been critically discriminated by supposed characters which simply merge together when large series of specimens are compared. To Dr. Dall belongs the merit of having first published this fact. He writes:

"The shell generally has from five to seven well-marked whorls; but under especially favorable conditions, as near the walls of Fort Marion, at Saint Augustine, it may have ten or twelve. The number exhibited on the base is absolutely inconstant when specimens from various localities are compared. Only by breaking into the last whorl can it be determined whether the parietal lamina exists. In specimens labelled *septemvolva* by Mr. Binney I have found it and it is often absent in what is otherwise typical *cereolus*. The soft parts in all are very uniform."

The synonyms are *H. septemvolva*, Say, (figs. 27–29), *H. volvoxis*, Parreyss, (fig. 35), *H. microdonta*, Desh. (figs. 36–38), *H. plana*, Dunker, *H. Carpenteriana*, Bland, (figs. 39, 40), *H. Febigeri*, Bland, (figs. 41, 42), *H. delitescens*, Shuttl. *H. polygyrata*, Pfr. *H. cheilodon*, "Say," Pfr. *H. planorbula*, Lam.

H. PALUDOSA, Pfr. Pl. 27, figs. 43–45.

Umbilicated, brownish corneous, thin, shining, obliquely costulate above, substriate below; whorls 5, periphery subangulated, base more convex; aperture obliquely lunar, peristome reflected, sublabiate within, parietal wall with a small tooth, sometimes absent.

Diam. 10 mill.

*Cuba.*

It is *H. lingulata*, Fer., *H. Ramonis*, Orb., *H. Bardenflehtii*, Villa.

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H. LUNDII, Mörch (unfigured). *Brazil.*

Subsection III, POLYGYRELLA, Bland. 1869.

H. POLYGYRELLA, Bland and Cooper. Pl. 27, figs 46–49.

Widely umbilicated, shining, translucent, yellowish corneous, costulate above, the ribs becoming obsolete at the aperture, base smoothish; whorls 7–8, somewhat convex, slowly increasing, the last shortly deflected in front, with radiating series of three teeth, remote from the aperture and from each other, and visible through the

base; peristome depressed above, white, simple, the extremities joined by a triangular parietal tooth. Diam. 12 mill.

*Idaho.*

Subsection IV, Dædalochila, Beck. 1837.

H. anilis, Gabb. Pl. 27, figs. 50, 51.

Narrowly, rimately umbilicated, very lightly, minutely striulate, white, suture impressed; whorls 4½, somewhat convex, the last a little descending and scarcely constricted anteriorly, base planate; aperture obliquely subhorizontal, peristome reflected, white, the extremities joined by a parietal tooth, basal margin scarcely tuberculate, outer margin edentulous. Diam. 13 mill.

*Guaymas, Mexico.*

H. helictomphala, Pfr. Pl, 27, figs. 52–54.

Umbilicated, solid, a little shining, obliquely costulate-striate, light yellowish corneous; whorls 5–5½, somewhat convex, the last subdeflected in front, subcarinated above the middle, with inflated base and constricted and scrobiculate at the aperture; peristome white, angularly reflected, extremities distant, connected by a thin parietal callus, there is a parietal tooth, with another on the basal and outer margin. Diam. 9–12 mill.

*Chiapa, Mexico.*

H. Harfordiana, Cooper. Pl. 27, figs. 55–57.

Widely umbilicated, smooth, translucent, yellowish corneous; whorls 6, slowly increasing, the last anteriorly shortly deflected; peristome depressed above, white, thickened, the extremities joined by a parietal callus, bearing a triangular tooth, the outer and basal margins each bear a tooth. Diam. 10 mill.

*"Big Trees," Cal.*

H. notata, Poey. Pl. 27, figs. 58–61.

Umbilicated, thin, slightly granulated, diaphanous, corneous brown; whorls 5½, a little convex, the last obsoletely angulated above, with more convex base, shortly deflected anteriorly; aperture diagonal, sinuously lunar; peristome angulately reflected, margins joined by a subtriangular tooth, outer margin with two hook-like teeth, basal with one obtuse tooth. Diam. 10 mill.

*Cuba.*

*H. Johannis,* Poey (not Mort.) is a synonym.

H. fastigans, L. W. Say. Pl. 27, figs. 62–65.

Convex beneath, nearly plane above; whorls 6, ribbed above, smooth beneath, periphery sharply carinated, brownish; aperture

lunate, the extremities of the margins connected by a V-shaped tooth, upper lip tooth compressed, transverse, remote, lower lip-tooth compressed, marginal, both marked externally by pits.

Diam. 8 mill.

*Tennessee.*

It is *H. fatigiata*, Say, *H. fastigiata*, DeKay.

H. Troostiana, Lea. Pl. 27, figs. 66–68; Pl. 28, fig. 88.

Differs from *H. fastigans* by its less prominent carina, the rib-like striæ being well-developed on the base, and its parietal tooth more quadrangular; spire slightly, convexly elevated; corneous, when fresh, minutely hirsute. Diam. 6 mill.

*Tennessee.*

Is *H. plicata*, Binney (not Say) in part.

H. Hazardi, Bland. Pl. 27, figs. 69–71.

Depressed above, convex below; whorls 5, narrow, ribbed above and below, periphery not angular; aperture subreniform lip-extremities connected by a V-shaped parietal tooth, lip teeth deep-seated, the lower one the largest and partly obscuring the upper one, which is situated farther in; externally scrobiculate opposite these teeth; epidermis brown, sparingly hirsute. Diam. 7 mill.

*Kentucky, Tennessee, Georgia, Alabama.*

For *H. plicata*, Say, preoccupied.

H. leporina, Gould. Pl. 27, figs. 72–74.

Shell small, lenticular, slightly hairy, minutely striate, spire convex, depressed; whorls 5, somewhat convex, the last subangulate at the periphery, base convex, umbilicus nearly covered, its region excavated; aperture lunate, lip incumbent, reflexed, with a central sinus, the sides of which are formed by two teeth, parietal tooth V-shaped; chestnut colored, lip sometimes roseate. Diam. 5 mill.

*Georgia to Tennessee, Indiana, Illinois, Arkansas, Mississippi.*

H. pustula, Fer. Pl. 27, fig. 75.

Small, depressed, lightly striate; whorls 4, subangulate on the periphery, more convex below it, deflected at the aperture; aperture with a V-shaped parietal tooth, and two tubercular teeth margining a central notch; umbilicus small and deep, with a groove revolving within it, corresponding with a lamina on the basal part of the interior of the shell; reddish brown, with short hairs.

Diam. 5 mill.

*Texas, Georgia, Florida.*

Distinguished from the next species by its narrower umbilicus, with its groove and internal lamina; the latter is only to be seen by breaking the whorl.

H. PUSTULOIDES, Bland. Pl. 27, figs. 76–78.

Widely and deeply umbilicated, thin, delicately striated, horn color, slightly hirsute; whorls 4½, narrow, subangular at the periphery, constricted and suddenly deflected at the aperture; aperture lunate, with a lamelliform parietal tooth joined to the upper extremity of the lip by a sharp callus, outer lip reflected, thickened within, with two internal teeth and a deep notch between them. Diam. 5·5 mill.

*Alabama, Georgia.*

H. ARIADNE, Pfr. Pl. 27, figs. 79–81.

Shell white, finely ribbed above, smooth beneath; whorls 5, with impressed suture; body whorl deflected, much constricted and scrobiculate behind the aperture; aperture small, lip thick, much expanded, its extremities joined by an irregular V-shaped tooth; lip with two stout basal folds converging within, while behind them is a perpendicular broad lamina almost closing the mouth; base convex, showing more than one whorl with a rounded umbilical groove terminating in a minute central perforation.

Diam. 12 mill.

*Tamaulipas, Mexico.*

H. UNGUIFERA, Mousson. Pl. 27, figs. 82, 83.

Arcuately rimate, somewhat solid, diaphanous, lightly costulate, whitish (denudated), suture subimpressed; whorls 5½, a little convex, the last shortly descending, bicompressed and subconstricted in front, base smooth, subangulated at the umbilicus; peristome shortly reflected, the margins converging, with a V-shaped parietal tooth, two entering basal teeth, the exterior larger, and two teeth within the outer margin. Diam. 12 mill.

*Mazatlan.*

Allied to the preceding species, but is distinguished from it and the others of the group by the lower tooth of the outer lip, which is elevated into a sharp projection.

H. DYSONI, Shuttlew. Pl. 28, figs. 88–91.

Rather widely umbilicated, shining, brownish corneous, subplicate above, striulate below; whorls 5–5½, a little convex, the last scarcely descending in front and subangulated on the periphery, base convex,

constricted towards the aperture; aperture tridentate, one entering, oblique, compressed tooth on the parietal wall, two submarginal teeth within the whitish reflected lip. Diam. 9 mill.

*Honduras.*

H. OPPILATA, Morelet. Pl. 27, figs. 84, 85.

Narrowly umbilicated, thinly striate, subpellucid, somewhat shining, light corneous, suture deep; whorls 5–5½, a little convex, slowly enlarging, the last suddenly deflected in front, constricted towards the aperture, base inflated; aperture diagonal, lunate-circular externally, ringent within, ear-shaped, whitish corneous, the parietal wall with a V-shaped tooth, basal with another tooth, outer wall with a third, wider, and forked. Diam. 7–8·66 mill.

*Yucatan.*

H. DORFEUILLEANA, Lea. Pl. 27, figs. 86, 87.

Obtusely conical above, periphery slightly angulated; whorls 6, with well-impressed suture, ribbed, smoother below, deflected in front, constricted but not scrobiculate behind the aperture; extremities of the lip joined by a parietal callus forming a quadrate tooth, far within, behind the parietal tooth, are two rounded tubercles, one superior, the other basal; base showing 1½ whorls and a minute perforation; whitish. Diam. 7·5 mill.

*Kentucky, Tennessee.*

H. IMPLICATA, Beck. Pl. 28, figs. 92–94.

Widely, perviously umbilicated, obliquely striulate, light corneous or whitish; whorls 5, slowly increasing, somewhat convex, the last obtusely angulated, deflected in front and constricted behind the aperture; peristome shortly reflected, the margins joined by a parietal callus forming a triangular tooth, lip with two equal, subapproximate teeth. Diam. 8 mill.

*Vera Cruz, Mexico.*

H. PLAGIOGLOSSA, Pfr. Pl. 28, figs. 95–97.

Narrowly, perviously umbilicated, solid, arcuately striulate, scarcely shining, fulvous corneous, suture impressed; whorls 5½, the last descending in front, constricted below, base more convex; peristome whitish, margins distant but slightly converging, connected by a parietal callus bearing an oblique tongue-like tooth, base with two approximate nodiform teeth. Diam. 9 mill.

*Oajaca, Mexico.*

H. Couloni, Shuttleworth. Pl. 28, fig. 98.

Narrowly, perviously umbilicated, sharply striulate, light corneous; whorls 6, somewhat convex, slowly increasing, the last gibbously constricted at the aperture and suddenly deflected; peristome white, reflected, parietal wall with a pliciform tooth, the external part with a strong tooth, the basal with a smaller one.

Diam. 10 mill.

*Vera Cruz, Mexico.*

H. acutedentata, Binney. Pl. 28, figs. 99–4.

Shell whitish, smooth; whorls 6, very convex, suture distinct; body whorl inflated, oblique, deflected at the aperture and scrobiculate behind the lip; aperture small, ringent, lip-extremities joined by a broad angular parietal tooth; there are three lip-teeth, one on the basal margin, erect and short, the other two are farther within and form slight elongated horizontal laminæ, marked by pits on the outer whorl. Diam. 14 mill.

Near *Mazatlan, Mexico.*

Var. Loisa, Binney. Figs. 2–4.

A little higher, the aperture with five teeth, the basal margin unequally bidentate, other teeth as in the type.

H. Behrii, Gabb. Pl. 28, figs. 5–7.

Shell planorboid, coarsely ridged above, striate below; whorls 5, convex, subangular at the periphery, very much deflected in front and constricted behind the aperture; umbilicus broad, with a minute central perforation; aperture rounded, lip expanding, its extremities approaching and connected by a large V-shaped parietal tooth, there are also a large marginal basal tooth and a smaller tubercle on the middle of the outer margin. Diam. 15 mill.

*Guaymas, Mexico.*

H. Jacksoni, Bland. Pl. 28, figs. 8–11.

Depressed, striate, smooth beneath, narrowly umbilicated; whorls 8, slightly convex, deflected in front, and contracted behind the lip; aperture oblique, lunate, lip thick, briefly reflected, its extremities joined by a V-shaped parietal tooth, basal margin with a strong oblique sinuous fold, right margin with a deeply seated tooth; dark brown, shining, lip brownish. Diam. 7 mill.

*Fort Gibson, Indian Territory; Springfield, Mo.; Arkansas.*

H. hippocrepis, Pfr. Pl. 28, figs. 12, 13.

Shell solid, opaque, depressed, with flattened spire and impressed suture; whorls 5½ scarcely convex above, abruptly deflected in

front and constricted behind the lip, periphery angulated; umbilicus expanded and grooved, with a minute central perforation; aperture extending from the periphery to the umbilicus, somewhat ear-shaped, lip white, expanded, its extremities connected by a V-shaped parietal tooth, the two laminæ of which run far within the shell, upper portion of the lip with an entering angle, basal portion callous and reflected. Diam. 12 mill.

*New Braunfels, Texas.*

H. MOOREANA, W. G. Binney. Pl. 28, figs. 16, 14, 15.

Depressed, carinated, white, strongly striate above and nearly smooth beneath; spire somewhat raised, suture deep; whorls 6, the last much deflected at the aperture, umbilicus exhibiting 1½ whorls; aperture semi-oval, lip broad, heavy, but slightly reflected, with two marginal teeth of which one is basal and the other sub-basal, parietal tooth large, rhomboidal. Diam. 10 mill.

*Texas.*

Var. THOLUS, W. G. Binney. Figs. 14, 15.

Umbilicus wider, showing 2½ whorls, lip narrower, tooth of outer lip situated higher.

H. TEXASIANA, Moricand. Pl. 28, figs. 17–19.

Orbicular-depressed, rather solid, ridged above, smooth below, suture moderately impressed; whorls 5, slightly convex above, periphery subangular, deflected in front, base convex; aperture crescentic, the lip-margins joined by a large V-shaped parietal tooth, outer lip with two closely placed denticles, with a pit between them; umbilicus minutely perforate; pale horn color.

*Texas, Mexico.*

*H. Tamaulipasensis*, Lea, is a synonym.

H. TRIODONTOIDES, Bland. Pl. 28, fig. 20.

Perforate, orbicular, depressed, thin, subpellucid, obsoletely striate above, smooth beneath; whorls 5, somewhat convex, deflected in front, subangulate on the periphery, and very convex below; aperture obliquely lunate, the extremities of the reflected lip connected on the body whorl by a V-shaped tooth, the lip having two small teeth, far apart, one on the outer margin of the aperture, the other on the base; pale horn color. Diam. 9·5 mill.

*Texas.*

More delicate, not as distinctly ribbed, more elevated than *H. Texasiana*; the teeth also are smaller, and farther apart.

H. HINDSII, Pfr. Pl. 28, figs. 24–26.

Depressed, orbicular, narrowly umbilicated, finely striated, diaphanous, shining, spire somewhat conical; whorls 5, slightly convex above, more convex below, deflected at the aperture and constricted behind it; aperture lunate, lip slightly reflected, its extremities united on the parietal wall by a callus and a V-shaped tooth, the lip has two basal teeth, and another on the right margin; light corneous.

Diam. 8 mill.

*Texas, Mexico.*

H. BICRURIS, Pfr. Pl. 28, figs. 21–23.

Rimately umbilicated, thin, striulate, yellowish corneous, slightly shining, suture submargined; whorls 5, somewhat convex, the last scarcely deflected in front, base more convex, subconstricted behind the aperture; aperture with a two-pronged parietal tooth, two teeth on the basal and one on the superior margin, lip white, shortly reflected. Diam. 9 mill.

*Mexico.*

H. VENTROSULA, Pfr. Pl. 28, fig. 27,

Minutely perforated, thin, shining, suture well impressed; whorls 5, but little convex and finely striate above, very convex and smooth beneath, periphery subangulated, last whorl much constricted behind the aperture; aperture with a V-shaped parietal tooth, two white basal teeth and a large subtriangular lamella within the outer margin; horn color. Diam. 8–11 mill.

*Texas and Mexico.*

H. AVARA, Say. Pl. 28, figs. 28–30.

Whorls 5, hirsute, slightly convex and coarsely ribbed above, convex below, and ribbed only for a short distance behind the aperture, the balance of the base being nearly smooth; base without groove, showing a little more than one whorl, and with a minute perforation; aperture with reflected lip, the extremities joined by a parietal callus bearing a large V-shaped tooth, the base has an oblique tooth, the right side a lamella, which is submarginal.

Diam. 7 mill.

*Florida, Louisiana.*

H. ESPILOCA, Ravenel. Pl. 28, figs. 31–33.

Whorls 5, thin, costulate above, periphery subangulated, base convex and finely striated, last whorl a little deflected in front and constricted behind the aperture; base showing 1½ whorls, the umbilical region bounded by an angle; margin of aperture con-

tinuous, the parietal tooth linguiform, the upper lip tooth hook-shaped at its lower termination, the basal tooth oblique; horn color, shortly hirsute. Diam. 8 mill.

*Sullivan's Island, So. Carolina; Georgia; New Orleans; Texas.*

H. POSTELLIANA, Bland. Pl. 29, figs. 34–36.

Whorls 5, costulate above, finely striate below, periphery subangular; aperture auriform, much contracted, the margins joined by a large, linguiform, entering tooth, right margin with a deep-seated lamella terminating below in a hook, basal margin with a prominent oblique lamella extending to the edge of the lip; brownish horn color, thin, pellucid, lip white. Diam. 9·5 mill.

*Georgia, So. Car., Fla.*

H. AURIFORMIS, Bland. Pl. 29, figs. 37–39.

Whorls 5½–6, with moderate suture, ribbed-striate above, periphery subangular, base convex and smooth, last whorl slightly deflected in front and constricted behind the ear-shaped lip; base showing nearly two whorls with a deep groove revolving on their inner side and a minute perforation; peristome continuous and expanded, parietal tooth linguiform, with two lip teeth, of which the upper one is a submarginal perpendicular lamella, and the basal one an oblique fold; whitish or brownish horn color. Diam. 10 mill.

*Georgia, Alabama, Texas.*

H. UVULIFERA, Shuttleworth. Pl. 29, figs. 40–41.

Whorls 5, with close ribs extending entirely across the base, which is convex, periphery subangulated, last whorl deflected in front, and scrobiculate behind the aperture; aperture oblique, much contracted by teeth, with the lip very much expanded, parietal tooth quadrately linguiform, extending into the aperture, the upper lip-tooth situated far within, the basal tooth an oblique plica; umbilical region subcarinate; horn color. Diam. 12 mill.

*Florida, Texas.*

*H. florulifera*, Reeve is a synonym.

H. AURICULATA, Say. Pl. 29, figs. 42, 43.

Whorls 5, costulate above and below, periphery slightly angulated, last whorl suddenly deflected to the aperture, and very strongly scrobiculate behind the middle of the right margin and also at the base; aperture oblique, auriform, the parietal tooth large, irregular, projecting inwards and upwards, right margin with a perpendicular

lamella, basal margin twisted into a large oblique tooth; base showing 1½ whorls, the umbilical region bounded by a carina.

Diam. 13–15 mill.

*Florida.*

Var. MICROFORMIS, Dall.

Smaller, more closely whirled, umbilicus smaller and less perspective. Diam. 12 mill.

H. CHIAPENSIS, Pfr.

Narrowly umbilicated, somewhat solid, striated, shining, whitish corneous, with a brownish band at the suture; whorls 5½, somewhat convex, the last deflected in front and turgid above, constricted below, base inflated; aperture large, diagonal, sinuately lunar, with a small, thin, parietal tooth, peristome white, shortly reflected, margins approaching, with a superior descending tooth, and an obsolete denticle on the base. Diam. 10·5 mill.

*Chiapa, Mexico.*

Unfigured.

Subsection V, SCULPTARIA, Pfr. 1855.

H. SCULPTURATA, Gray. Pl. 25, figs. 69, 67, 68; Pl. 24, figs. 27, 28.

Widely umbilicated, closely costulate, the interstices reticulately striate, whitish, spire planulate; whorls 5, slightly convex, the last constricted in front on the base; aperture circular, with an entering parietal lamella and two teeth on the right margin, peristome subexpanded above, reflected below. Diam. 8 mill.

*Damara, So. Africa.*

Var. COLLARIS, Pfr. Pl. 24, figs. 27, 28.

This form has 4½ whorls with channeled suture, the last acutely, crenately carinate, solute in front, corneous white.

Var. DAMARENSIS, H. Adams. figs. 67, 68.

Very closely covered with capillary striæ, whitish fulvous above, whitish below, with a light fulvous band on the periphery, the whorls are 6, the last suddenly decending in front, the periphery ribbed-carinated, the aperture has the parietal lamina and three obtuse lip teeth.

Section III. STROBILA, Morse, 1864.

H. LABYRINTHICA, Say. Pl. 29, figs. 44–48.

Obtuse conic, yellowish brown; whorls 6, closely ribbed above, more slightly so below, suture well impressed; lip thickened, somewhat reflected, with two revolving laminæ upon the base, not visible from

the aperture, but seen through the shell, upon the parietal wall are three revolving laminæ, and upon the columella another; base flattened, umbilicus small, impressed. Diam. 2·5 mill.

*Maine* to *Maryland, Florida, Mississippi, Texas, Arkansas, Western States, Mexico.*

The last locality is for *H. Strebeli*, Pfr. (fig. 48) which is now generally considered a synonym.

Var. Morsei, Dall.

Differs from the type in wanting the costæ, the whorls being only lightly striate, rather flat and appressed, with the basal periphery particularly angular and the umbilicus slightly smaller.

*Porto Cabello, Venezuela.*

H. Hubbardi, A. D. Brown. Pl. 29, figs. 49–52.

Depressed, thin, striate above, smooth beneath, brownish; whorls 5, with two parietal revolving laminæ, and two, more deep-seated, on the outer whorl; umbilicus rather wide; lip slightly reflected. Diam. 2·25 mill.

*Georgia, Florida, Indianola, Texas; Jamaica.*

*H. Vendryesiana* Gloyne (figs. 51, 52) from the last-named locality, is a synonym.

***

H. leioda, Hutton. (Unfigured). *New Zealand.*

Section IV. Stenotrema, Rafinesque, 1819.

The shells brought together under the genus Stenotrema of Rafinesque are readily arranged in four groups: *First*, the group including *Edvardsi* and *barbigera* characterized by the extraordinary development of the epidermal hairs. *Second* that formed by *spinosa*, and *Edgariana* equally well characterized by the sharp periphery of the body whorl and the prostrate epidermal hairs. *Third* the group containing *hirsuta*, *stenotrema*, *labrosa*, and *maxillata*, in which the epidermal processes are shorter, and the surface is more tuberculate. *Fourth*, the group containing *monodon*, *fraterna*, *Leaii*, and *germana*. Among themselves the species in each group are united more or less closely, those of the monodon group being usually regarded as varieties of that shell, with the exception of *H. germana*, which Mr. Binney finds to be related to Stenotrema by its jaw and dentition, and more nearly to Mesodon by its shell; a prominent character of which is the want of the internal tubercle.

The writer may here record his opinion that *H. Leaii* is also a valid species if other species are to be left to stand on characters which seem to be far less well defined.

The hirsute group is next in this regard, and when the varieties of *hirsuta* and *stenotrema*, above mentioned are taken into consideration, the blending of the species into varietal forms is pretty well assured in one or two cases.

It seems that the *Edvardsi* group and the *spinosa* group, of but two species each, though well enough characterized to be distinguished as separate divisions of this genus, may be united with the hirsute group by several characters of greater or less importance. It is not pretended that this grouping is of any systematic value, whatever; but it will serve to call attention to the relations which the species of this singular genus bear to each other, and to their nearest allies in other genera, the genus gradually shading into Mesodon as represented by H. columbiana, Lea, through H. germana, Gould. —A. G. Wetherby. (Journal of the Cincinnati Soc. of Nat. Hist. 1880, Vol. III, pages 35, 36).

H. HIRSUTA, Say. Pl. 29, figs. 53–55.

Shell hirsute, subglobose, spire convex, elevated, suture deep; whorls 5, convex, periphery subangulated, base well-rounded, umbilicus covered; aperture narrowly transverse, partly filled by the lamelliform parietal tooth, outer lip with a triangular notch upon its basal portion. Diam. .6 mill.

*New England, Middle and Western States.*

H. STENOTREMA, Fer. Pl. 29, figs. 56–58.

Subglobose, depressed, spire conically convex, suture well-impressed; whorls 5, narrow, slowly increasing, subangulated on the periphery, more convex below, slightly impressed in the umbilical region, finely striate and hirsute; aperture narrow, transverse, subbasal, partly closed by a long, lamelliform parietal tooth, the narrow, depressed outer lip is reflected close upon the whorl, with a small triangular notch in its centre; chestnut brown, lips white or pink.

Diam. 10 mill.

*Western and Southern States.*

Larger and less globose than *H. hirsuta*, but with a smaller and more central lip notch; the large parietal tooth is regularly bow-shaped over its edge in this species, instead of sinuous and abruptly terminated as in *H. hirsuta*

H. MAXILLATA, Gould. Pl. 29, figs. 59–61.

Globose, with conically convex spire, subangular on the periphery and more convex below; whorls 5, narrow; aperture transverse, nearly filled by a long, laminar parietal tooth, lip closely appressed, narrow, without notch, with a lamina behind its margin, and scarcely visible on account of the parietal tooth being in front of it; umbilicus covered; light chestnut color. Diam. 6 mill.

*Tennessee, Georgia.*

H. EDVARDSII, Bland. Pl. 29, fig. 62.

Rather thin, imperforate, angulate on the periphery, the angle becoming obsolete towards the aperture; whorls 5, narrow, slowly increasing, hirsute, base very convex, slightly indented in the middle, with impressed spiral lines under the epidermis; aperture narrow, transverse, with a narrow, slightly curved, parietal tooth, upper margin of the lip scarcely reflected, basal portion slightly reflected, and appressed partly to the body whorl, with a tooth-like callus within and an almost obsolete central notch; dark brown.

Diam. 9 mill.

*Mts. in Virginia.*

Differs from *H. hirsuta* in its more angulated periphery and less distinct lip-notch.

H. LABROSA, Bland. Pl. 29, figs. 63–65.

Imperforate, lenticular, periphery carinated, solid, finely obliquely striate, epidermis thin, with prostrate hairs when fresh; whorls 5½, narrow, slowly enlarging, the last deflected, and constricted behind the lip; aperture transverse, narrow, ear-shaped, extremities of the lip connected by a callus and a long blade-shaped parietal tooth, lip with a wide and deep central notch; dark brown.

Length 12·5 mill.

*Arkansas, Alabama, Tennessee.*

H. EDGARIANA, Lea. Pl. 29, figs. 66, 67.

Somewhat lenticular, spire depressed trochiform, suture distinct; whorls 5, flattened above, periphery carinate, base convex, imperforate; aperture narrowly transverse, outer lip notched in the middle, parietal wall with a long blade–shaped tooth; dark brown, hairy when fresh. Diam. 10 mill.

*Cumberland Mts., Tennessee.*

H. SPINOSA, Lea. Pl. 29, figs. 68–70.

Lenticular, depressed conical above, suture slight; whorls 6, flat above, acutely carinated at the periphery, convex below, slowly

increasing, covered with prostrate hairs in fresh specimens; aperture very narrow, lip slightly reflected and thickened, slightly incised in the middle, parietal tooth long, narrow, projecting, extending from the axis to the angle of the lip above; umbilical region indented; dark chestnut color. Diam. 14 mill.

*Mts. in East Tennessee and northern parts of Georgia and Alabama.*

The carina of each whorl slightly projects at the suture, Young shells are widely umbilicated, with hairs covering the surface and projecting around the periphery like a fringe.

H. BARBIGERA, Redfield. Pl. 29, figs. 71–73.

Somewhat lenticular, sharply carinated, the carinæ of the spire-whorls overlapping at the suture, spire convexly conical; whorls 5½, narrow, flattened, base convex; aperture narrow, transverse, lip reflected, not dentate or incised, covering the axis, parietal lamina long; dark horn color, epidermis striate, hirsute, forming ciliæ on the periphery. Diam. 10 mill.

*N. W. Georgia.*

Like the other carinate Stenotremæ, this is a mountain species. It is readily distinguished from its allies by the absence of a lip notch.

H. MONODON, Rackett. Pl. 29, figs. 74–78.

Whorls 5, narrow, convex, finely striate, hirsute or covered by the scars of hairs, deeply grooved behind the reflected lip; aperture transverse, with a long, oblique parietal tooth; base very convex, much impressed round the deep, narrow, more or less open umbilicus. Diam. 7–10 mill.

*Inhabits the whole United States, east of the Rocky Mountains.*

It is *H. convexa*, Raf.

Var. LEAII, Ward. Fig. 78.

More convex, generally smaller, with more open umbilicus.

Var. FRATERNA, Say. Fig. 77.

Smaller, umbilicus closed.

Var. CINCTA, Lewis.

More flattened, periphery obsoletely or slightly carinated, usually with a brown peripheral band.

*Mts. of Western N. Carolina.*

H. GERMANA, Gould. Pl. 29, figs. 79–81.

Solid, imperforate, whorls 5, narrow, subangular at the periphery, very convex below; aperture narrowly transverse, parietal wall with a long blade-shaped tooth; horn color, with a few scattered hairs. Diam. 7·5 mill.

*Oregon.*

The base is more convex than in *H. monodon*, and is not indented around the axis.

Section V. TRIODOPSIS, Rafinesque, 1819.

Subsection I. TRIODOPSIS, (sensu stricto).

H. TRIDENTATA, Say. Pl. 29, figs. 82–84.

Whorls 5–6, a little convex, obliquely ridged-striate, aperture trilobate, lip widely reflected with a small marginal tooth on the upper and another on the basal portion, parietal wall with an oblique tooth, base convex, umbilicus open and deep; yellowish horn color, lip milk white. Diam. 13–23 mill.

*Canada, United States east of the Rocky Mts.*

*Triodopsis lunula*, Raf. teste Fer., is a synonym.

Generally larger than the next species, with more depressed form and much smaller teeth.

H.. FALLAX, Say. Pl. 29, figs. 85–87.

Whorls 5, moderately convex, obliquely ridged-striate; aperture trilobate, the parietal lamelliform tooth large and oblique, the lip teeth large and flattened, the upper one deflected into the aperture; base moderately convex, umbilicus open; light horn color, lip white. Diam. 11 mill.

*United States, east of Rocky Mountains.*

Dr. Binney included this species in *H. tridentata*, as a variety; it differs in its smaller size, more elevated spire and larger teeth.

H. LEVETTEI, Bland. Pl. 29, figs. 88, 89.

Umbilicated, thin, shining, translucent, irregularly, slightly, obliquely striated, suture impressed; whorls 7, the last a little deflected at the aperture, behind which it is constricted, obsoletely spirally striated; aperture with a transverse parietal tooth, an obtuse marginal tooth on the right side, and two transverse basal teeth, the upper one larger, peristome pale chestnut colored, its margins joined by a slight callus.

*Near Santa Fe, New Mexico.*

H. VULTUOSA, Gould. Pl. 30, figs. 91–93.

Rather solid, closely delicately striate, suture well impressed; whorls 5½, convex, slowly increasing, the last subangular, deflected at the aperture, well rounded below, with moderate umbilicus; aperture lunate, its outline somewhat sinuous, parietal tooth broadly lamelliform, oblique, joined to the lip below, lower lip tooth small, upper one expanded and reflected; dark horn color.

Diam. 10 mill.

*Texas, Arkansas.*

Var. HENRIETTÆ, Mazyck. Fig. 93.

Aperture more triangular, peristome much thickened, but scarcely reflected, the parietal wall with an obtuse denticle, and a long lamelliform tooth, the internal teeth deep-seated, umbilicus wider, surface with pits behind the aperture.

*Texas.*

H. COPEI, Wetherby. Pl. 30, figs. 2–4.

Larger, and of lighter texture, with stronger growth-lines than *H. vultuosa*, Gould. The lip is also more broadly reflected below, with a sharper central angle, umbilicus wider, wall of aperture with an acute carina, behind which is a double tooth, right margin with a single small tooth, parietal wall with a curved lamella.

Diam. 12 mill.

*Hardin Co. Texas.*

May be only a variety of *H. vultuosa*.

H. CRAGINI, Call. Pl. 30, figs. 100, 1.

Narrowly umbilicated, shining, striate, smoother below, reddish horn color, with yellowish blotches, marking the position of former peristomes; whorls 5, convex, body whorl rapidly enlarging; aperture with a short, strong, straight or scarcely curved parietal tooth, peristome white, with a heavy callous deposit, a stout triangular tooth on the right margin and a somewhat transverse tooth on the basal margin, fulcrum-deposit some distance within the aperture.

Diam. 8·5 mill.

*Neosho Co., Kansas.*

H. HOPETONENSIS, Shuttlew. Pl. 30, figs. 94, 95.

Thin, ribbed-striate; whorls 5½, somewhat convex, more convex below, constricted behind the aperture; aperture trilobate, parietal tooth sharp, lip teeth small; narrowly umbilicated; light horn color.

Diam. 13 mill.

A coast species, *So. Carolina to Florida.*

H. INTROFERENS, Bland. Pl. 30, figs. 96–98.

Thin, with rib-like striæ, yellowish horn color, whorls 5–6, somewhat rounded, the last descending, constricted behind the lip, with exterior pits marking the position of the teeth, periphery subangular; parietal tooth oblique, lamelliform, basal lip tooth submarginal with a strong white tubercle behind it, upper lip tooth transverse; base convex, grooved within the open umbilicus. Diam. 11–15 mill.

*North Carolina, Philadelphia, Pa.* (small form).

Distinguished by its narrow, grooved umbilicus and tubercular basal tooth.

H. VAN NOSTRANDI, Bland. Pl. 30, fig. 99.

More decidedly costate, more convex at the base, with smaller umbilicus and without the internal tubercle of H. introferens; but may be only a variety of that species. Diam. 12·5 mill.

*Aiken, So. Carolina.*

H. LORICATA, Gould. Pl. 30, figs. 5–8.

Whorls 5, convex, thin, obliquely striate, fresh specimens hispid, much contracted behind the lip, dark horn color; aperture transversely trilobate, the very oblique parietal tooth quite small, the two lip teeth scarcely distinct; base very convex, umbilicus narrow and deep, slightly contracted by the lip. Diam. 6–8 mill.

*California.*

*H. Lecontei*, Lea is a synonym.

H. MULLANI, Bland and Cooper. Pl. 30, figs. 9–12.

Irregularly striate, shining, with a thin epidermis, covered with minute spiral lines and tubercles (scars of hairs); whorls 6, convex, much constricted behind the aperture, smoother on the base; aperture trilobate, the parietal tooth small, linguiform, lower lip tooth lamelliform, upper one small, sometimes obsolete; umbilicus moderate, partially covered by the lip; dark horn color. Diam. 13·5 mill.

*Oregon, Washington Terr.*

Mr. Binney formerly considered this indentical with *H. devia*, Gould; I agree with him that it is probably distinct, although they approach closely in some specimens.

H. SANBURNI, W. G. Binney. Pl. 38, figs. 100, 1.

Narrowly umbilicated, thin, sparsely hirsute, scarcely striate, yellowish horn-colored; whorls 5½, slightly convex, the last hardly descending, convex beneath; aperture trilobed, with a heavy, promi-

nent, blunt parietal tooth, peristome white, thickened, broad, almost covering the umbilicus, with a large squarely truncated denticle on its right margin and a stout, bluntly pointed one on its base.

Diam. 11 mill.

*Kingston, Northern Idaho.*

H. SALMONENSIS, Tryon. Pl. 38, figs. 96, 97.

Umbilicated, thin, shining sparsely hirsute, greenish horn-colored, growth-wrinkles not prominent; whorls 4½, hardly convex, the last scarcely descending and deeply grooved behind the peristome, base slightly convex; aperture very oblique, trilobed, with a small parietal tooth, peristome narrow, scarcely reflected, bearing two distant, slightly developed denticles. Diam. 8·5 mill.

*Salmon River, Idaho.*

Described by W. G. Binney as *Triodopsis Harfordiana*, the specific name preoccupied in the section Polygyra.

H. BINOMINATA, Tryon. Pl. 38, figs. 98, 99.

Imperforate, coarsely, slightly wrinkled, russet colored, sparsely hirsute; whorls 5½, convex, the last globose, slightly descending; aperture very oblique, lunate, with a short, narrow, somewhat curving parietal tooth, peristome white, broad, thickened, revolute, usually quite concealing the umbilicus, bearing on its basal margin an elongated, lamellar, tooth-like process. Diam. 17 mill.

*Kingston, Northern Idaho.*

Described by W. G. Binney under the preoccupied name of *H. Hemphilli*.

H. YUCATANEA, Morelat. Pl. 30, fig. 13.

Depressed above, but quite convex below the angular periphery; whorls 5, obliquely ridged above, striate below, constricted behind the reflected lip; aperture trilobate, parietal tooth very oblique, nearly V-shaped, with a lip tooth opposite, and a smaller erect basal one; umbilicus rather wide and deep; light horn color.

Diam. 8 mill.

*Yucatan.*

Subsection II, ISOGNOMONOSTOMA, Fitzinger. 1833.

H. INFLECTA, Say. Pl. 30, figs. 14–16, 16a, 16b.

Whorls 5, minutely obliquely striate, sometimes hirsute, very much contracted behind the lip; aperture trilobate, parietal tooth almost transverse, large and blade-shaped, basal lip tooth a small

upright tubercle, upper lip tooth in the middle of the outer lip, larger and inflected; lip covering the umbilicus; light horn color.

Diam. 11 mill.

*Western Pennsylvania* to *Michigan, Southwards* to *Texas.*

*H. clausa*, Raf. is a synonym.

H. RUGELI, Shuttlew. Pl. 30, figs. 20, 21.

Whorls 5½, narrow, rather smooth, the last very much contracted in the centre behind the lip; aperture small, with a prominent, bent, oblique parietal tooth, a small upright, tubercular basal tooth, and an upper lip tooth, lamellar, farther within the aperture; base convex, with covered umbilicus; light horn color.

Diam. 10–13 mill.

*Tennessee, No. Carolina.*

Easily distinguished from *H. inflecta* by its deep-seated upper lip-tooth.

H. PERSONATA, Lam. Pl. 30, figs. 25–27.

Umbilicus nearly covered, corneous, opaque, pubescent; whorls 5, a little convex, the last constricted in front; aperture angularly trisinuate, lip widely reflected, bidentate, the extremities almost joined by a tongue-shaped parietal tooth. Diam. 11 mill.

*Middle Europe.*

*H. isognomostomos*, Gmel. (in part) is a synonym.

H. SUBPERSONATA, Middendorff. Pl. 30, figs. 17–19.

Covered perforate, opaque, pubescent; whorls 5, scarcely convex, the last gibbous above at the aperture, laterally slightly constricted; lip reflected, callous within, bidentate, the teeth minute, equal, parietal wall with a tongue-shaped oblique tooth.

Diam. 7 mill.

*Siberia.*

Subsection III, XOLOTREMA, Raf. 1819.

H. PALLIATA, Say. Pl. 30, figs. 30–32.

Imperforate, light to dark horn color or brownish, with elevated oblique ribs, epidermis rugose, with close, minute, hispid prominences; whorls 5, not very convex, with subangulated periphery; aperture trilobate, parietal tooth large, oblique, the basal tooth blade-shaped.

Diam. 23 mill.

*Appalachian Mts.* and westward, *Vermont* to *Tennessee* and *Iowa.*

*H. denotata*, Fer., *H. notata*, Desh. and *H. Carolinensis*, Lea. are synonyms.

H. OBSTRICTA, Say. Pl. 30, figs. 22–24.

Imperforate, pale to dark brown, acutely carinated, the carina visible on all except the apical whorls, with distant, sharp, oblique costæ, fringing the edge of the carina in crossing it, and frequently, slight, close spiral lines; whorls 5, depressed-convex above, more convex below; aperture trilobate, with widely reflected lip, parietal tooth strong, oblique, upper lip tooth small, basal tooth long, blade-like. Diam. 22 mill.

*Western* and *Southern United States.*

Differs from the preceding in its strong carina and in not being hispid.

*H. helicoides*, Lea is a synonym.

H. APPRESSA, Say. Pl. 30, figs. 28, 29.

Imperforate, yellowish horn color, obliquely costulate above, smooth beneath; whorls 5, slightly convex, the periphery sub-angulate, constricted behind the widely reflected lip; aperture trilobate, with a long, oblique parietal tooth, a lamellar basal and a small upper lip tooth, the latter sometimes obsolete.

Diam. 18 mill.

*Mostly West of the Appalachian Mountains, extending from New York to Georgia and Illinois; also Wilmington, N. C. etc.*

Smaller, and without the hispid surface of *H. palliata.*

*H. linguifera*, Fer. is a synonym.

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H. ELEVATA, Say. Pl. 31, figs. 57–69.

Imperforate, thick, finely obliquely striated, yellowish horn color, suture well-impressed; whorls nearly 7, convex, slowly increasing, body-whorl large and well-rounded; aperture somewhat triangular, contracted by the lip, which is thickened, but not very broadly reflected, and cövers the umbilicus; a long lamellar tooth is on the base of the lip, and the parietal wall has a stout tooth curving inwards above. Diam. 23 mill.

*W. New York to West Virginia*, and *westward to Wisconsin and Missouri.*

Mr. W. G. Binney has Wisconsin specimens remarkable for the presence of chestnut bands on the periphery. *H. Knoxvilliana*, Fer. and *H. Tennesseensis*, Lea are synonyms, the latter a juvenile,

H. Clarkii, Lea. Pl. 31, figs. 60–62.

Imperforate, moderately thick, finely striated, suture moderate, reddish corneous; whorls 7, convex, slowly increasing, body whorl well rounded; aperture subtriangular, the lip reflected and thickened. with a long lamellar tooth on the base, and a strong curved tooth on the parietal wall. Diam. 14 mill.

*Cherokee Co., N. Carolina.*

Almost a pigmy *elevata*, but with less convex whorls.

Subsection IV, Metodontia, Mollendorff, 1883.

H. hemipleuris, Moll. Pl. 30, figs. 33, 34.

Perforation nearly covered, somewhat solid, plicate above, almost smooth below, white with a brown peripheral band, and a wider one at the suture; whorls 7½, periphery subangulated; aperture with two approximating parietal teeth, lip with a callus ridge rising into two triangular teeth. Diam. 9 mill.

*Prov. Hubai, China.*

*H. Moltneri*, Gredler is a young shell—perhaps of this species, perhaps of *H. Huaiensis.*

H. Yantaiensis, Crosse and Debeaux. Pl. 30, figs. 35, 36, 40, 41.

Perforation nearly covered, rather thin, subtranslucent, very finely striated, yellowish corneous; whorls 5, the last slightly compressed towards the aperture, not descending; peristome white, a little reflected, parietal wall with two small teeth, lip-teeth remote, small, without callous connection. Diam. 8 mill.

*Yantai, Prov. Chantong, China.*

This is the type of Mr. Ancey's new group Tetrodontina, which may be considered a synonym of Metodontia.

Var. tetrodon, Mollendorff Figs. 40, 41.

Smaller and more elevated than the type, the lip teeth connected by a callous ridge. Diam. 6·5 mill.

*Kalgan, China.*

H. Houaiensis, Crosse. Pl. 30, figs. 37–39.

Umbilicus narrow, defined by an angle, white with an obsolete sutural and a peripheral brown band; whorls 7, narrow, the last not descending; peristome with broad internal callus, rising into two triangular teeth, parietal wall with two minute teeth.

Diam. 14 mill.

*Cheou-tcheou, China.*

Wants the superior plications of *H. hemipleuris*, and differs also in being larger, with a more distinct umbilicus.

*H. obstructa*, Heude (not Fer.) is a synonym.

Section VI, Mesodon, Rafinesque, 1819.

Subsection I, Mesodon (restricted).

H. major, Binney. Pl. 31, fig. 42.

Imperforate, yellowish horn color, stout, covered by close oblique striæ, suture well-impressed; whorls 6, convex, body whorl very slightly declining; lip thick, wide, covering the umbilicus, with a sub-toothlike elevation on the base. Diam. 44 mill.

*Tennessee to Georgia and Alabama;* a mountain species.

Coarser, larger, more globose than *H. albolabris*, yet perhaps only a local variety of it.

H. andrewsii, Binney. Pl. 31, figs. 43–45.

Imperforate, globose, delicately striate, with microscopic revolving striæ, horn color, whorls 6, convex, the last greatly swollen; peristome white, thickened, slightly reflected, the extremities not approaching. Diam. 25 mill.

*Mountains of North Carolina and Georgia.*

A supposed variety of this species (fig. 45) is figured by Mr. Binney, which I would refer to *H. major*, yet its dentition and genitalia are said to be the same as in *H. Andrewsii*. As in *H. albolabris*, it sometimes occurs with a parietal tooth.

H. albolabris, Say. Pl. 31, figs. 46–48.

Imperforate, moderately thick, closely obliquely striate, with crowded, slightly impressed spiral lines, yellowish horn color; whorls 5–6, flattened convex, the body whorl a little deflected at the aperture and contracted behind the lip; lip white, widely reflected, dilated over the umbilicus. Diam. 25 mill.

*Canada to So. Carolina, westward to Arkansas and Nebraska.*

Var. dentata.

Parietal wall with a slight denticle. This variety has the aperture of *H. thyroides*, but may be distinguished by its imperforate axis.

H. multilineata, Say. Pl. 31, figs. 49–51.

Imperforate, closely, obliquely striate, with deep suture, yellowish horn color, with more or less numerous spiral chestnut bands of

varying width, sometimes uniform chestnut color; whorls 5–6, very convex, the last considerably deflected at the aperture; lip white, narrowly reflected, dilated into the umbilicus. Diam. 25 mill.

*Western and Northwestern United States.*

H. Pennsylvanica, Green. Pl. 31, figs. 52–54,

Imperforate, turbinately subglobose, rather thick, closely obliquely striate, suture distinct, bright horn color; whorls 6, convex; aperture subtriangular, lip white, narrowly reflected, slightly thickened internally at the base; umbilical region indented.

Diam. 13–18 mill.

*Western Pennsylvania to Illinois.*

More turbinate, with more triangular aperture than the next species.

H. Mitchelliana, Lea. Pl. 31, figs. 55, 56.

Imperforate, subglobose, moderately thick, translucent, finely striate, shining, yellowish horn color, suture not deep; whorls 5, the last well-rounded, contracted behind the lip above, but the groove becoming indistinct towards the base; aperture rounded, lip white, narrowly reflected; base very convex. Diam. 15 mill.

*Virginia, No. Carolina, Ohio, Kentucky.*

H. Christyi, Bland. Pl. 31, figs. 63, 64.

Imperforate, depressed, solid, with close, oblique, rib-like striæ, dark horn color; whorls 4½, somewhat convex, descending in front, periphery a little angular, base convex, excavated in the middle; aperture with a strong parietal tooth. Diam. 10 mill.

*Mts. Cherokee Co., N. Carolina; Georgia; E. Tennessee.*

H. exoleta, Binney. Pl. 32, figs. 65–67.

Ventricose, suborbicular, whorls 5–6, heavy, suture well-marked, body whorl large and convex; aperture rounded, lip reflected, parietal wall toothed; umbilicus covered by the extremities of the lip; light horn color. Diam. 25 mill.

*Western N. York to Georgia, and westward to Missouri.*

It is *H. zaleta*, Say, of Binney.

H. Wheatleyi, Bland. Pl. 32, figs. 68, 69.

Imperforate, thin, closely ribbed-striate, with microscopic granulations, hirsute; whorls 5½, convex, the last well rounded, slightly depressed and constricted at the aperture, base convex, umbilical

region excavated; aperture obliquely lunate, with a parietal tooth; reddish horn colored, the lip often rosaceous. Diam. 14 mill.

*Mts. in Western N. Carolina, and Georgia.*

This, and *H. Columbiana* of the Pacific region are the only hirsute species of Mesodon.

H. DENTIFERA, Binney. Pl. 32, figs. 70–72.

Depressed, spire flatly convex, base well-rounded; whorls 5, delicately striate, suture distinct, but not deeply impressed; aperture wide, lip broadly reflected and covering the umbilicus, parietal wall armed with a prominent tooth; yellowish horn color.

Diam. 19 mill.

*Maine to North Carolina, westward to Ohio;* a mountain species.

H. WETHERBYI, Bland. Pl. 32, figs. 73, 74.

Imperforate, thin, granulately striate, pale horn-color, hirsute; whorls 5, the last suddenly deflected, periphery subangulate; parietal wall with a linguiform tooth, peristome dilated over the umbilicus.

Diam. 17 mill.

*Kentucky, Tennessee, N. Carolina;* a mountain species.

H. RÖMERI, Pfr. Pl. 32, fig. 75.

Depressed, rather thin, semitransparent, closely, faintly striate, suture slightly impressed, horn colored; whorls 5, somewhat convex, the last obtusely angulated on the periphery, scarcely descending in front; aperture obliquely lunate, lip thickened, hardly expanded above, well-reflected below, partially (or rarely, entirely) closing the umbilicus, parietal wall generally with a well-developed tooth.

Diam. 21 mill.

*Texas.*

H. DIVESTA, Gould. Pl. 32, figs. 76, 77.

Moderately thick, coarsely obliquely striated, suture well marked; whorls 6, the last with subangulate periphery; base convex, umbilical region excavated but covered; aperture lunate, very oblique, lip white, broadly reflected, horizontal at base, its outer portion flexuous; dingy horn color. Diam. 18 mill.

*Washington Springs, Arkansas*; *Mississippi.*

First described by Gould as *H. abjecta*, a name preoccupied by Lowe.

H. THYROIDES, Say. Pl. 32, figs. 97–99, 78–80.

Thin, regularly, closely, obliquely striate, suture moderate; whorls 5, convex, the last large, well-rounded, slightly declining at the aper-

ture, behind which it is a little constricted; aperture obliquely semilunar, lip white, moderately reflected, parietal wall with a slight tooth, sometimes obsolete or undeveloped; umbilicus open but partially circumscribed by the lip; uniform light horn or straw color.

Diam. 25 mill.

*United States, east of the Rocky Mts.*

Var. BUCCULENTA, Gould. Figs. 78–80.

Smaller, more globular, darker (often reddish horn-color), with less open umbilicus. Diam. 16 mill.

In the Southern Atlantic and Gulf States, Eastern Pennsylvania, New York etc. this form largely replaces the typical *thyroides*. Of late years it has been considered a distinct species, but Mr. W. G. Binney in his last work reunites it with *thyroides*; perhaps properly.

*H. rufa*, DeKay is a synonym.

H. CLAUSA, Say. Pl. 32, figs. 81–83.

Subglobose, moderately thick, with fine oblique striæ, spire convex, with distinct suture; whorls 5, convex, the last large, contracted behind the lip, base very convex; aperture rounded, lip white, narrowly reflected, nearly covering the umbilicus; light yellowish brown, shining. Diam. 13–15 mill.

*Middle Western United States, Great Lakes to Mississippi and Alabama.*

*H. Ingallsiana*, Shuttlew. is a synonym.

H. DOWNIEANA, Bland. Pl. 32, figs. 84, 85.

Subglobose, thin, subpellucid, with obsolete rib-like striæ, and crowded minute revolving lines; spire depressed conical, suture moderate; whorls 5, convex, the last tumid, scarcely descending, constricted behind the lip; aperture obliquely lunate, lip white, narrowly reflected, nearly covering the umbilicus; base convex greenish horn color. Diam. 10·5 mill.

*Franklin Co. Tenn; Whitley Co. Kentucky.*

H. LAWI, Lewis. Pl. 32, figs. 86, 87.

Narrowly umbilicated, delicately striate, horn colored; whorls 4, the last descending and deeply constricted behind the peristome; parietal wall with a linguiform tooth. Diam. 6 mill.

*North Carolina, Georgia, W. Tennessee.*

H. JEJUNA, Say. Pl. 32, figs. 88–90.

Perforate, nearly smooth, corneous; whorls 5, the last large, with convex base; peristome narrow, white, with a deep external groove behind it, no teeth. Diam. 8 mill.

*Florida, Southern Georgia, Mobile, Ala.*

*H. Mobilliana*, Lea is a synonym.

H. COLUMBIANA, Lea. Pl. 32, figs. 91–95.

Depressed orbicular, closely hirsute, spire depressed conical, suture well impressed; whorls 6, the last rapidly increasing, very convex, deeply constricted behind the lip and descending in front; aperture narrowly lunate, lip white, widely reflected, partly covering the umbilicus; base very convex; yellowish horn color.

*Alaska, Oregon, California.*

This species sometimes developes a strong parietal tooth. *H. labiosa*, Gould is a form of this species with very circular aperture and widely reflected peristome. *H. armigera*, Ancey is another variety more globose below and more densely hirsute than the typical form, the peristome narrow, much less developed, parietal tooth usually present.

H. DEVIA, Gould. Pl. 32, fig. 96.

Orbicularly depressed, rather thick, strongly obliquely striate; spire convex, suture moderately impressed; whorls 6, the last well-rounded; aperture obliquely and transversely lunate, with a widely reflected white lip, which is somewhat toothed at the base, and impinges on the open umbilicus, parietal tooth trigonal, oblique, quite large; dark horn color, nearly brown. Diam. 20 mill.

*Oregon.*

*H. Baskervillei*, Pfr. is a synonym.

H. PTYCHOPHORA, A. D. Brown. Pl. 38, figs. 2, 3.

Shell with almost concealed umbilicus, with distant coarse striæ, thick, dull russet color; whorls 5, convex, the last swollen below, rapidly descending in front; aperture oblique, subcircular, peristome white, thick, narrow, reflected, with a basal thickening, scarcely tooth-like, parietal wall with a thin callus.

Diam. 19 mill.

*Montana, Idaho, Oregon.*

Var. MAJOR. With six full whorls, the umbilicus less concealed.

Diam. 22 mill.

This shell was formerly considered by Mr. Binney a small variety of *Arionta Townsendiana*, but he now places it in Mesodon. The surface has not the revolving striæ and malleatious of the Ariontæ.

Subsection II. Ulostoma, Albers. 1850.

H. profunda, Say. Pl. 33, figs. 3, 4.

Whorls 5–6, convex, strongly obliquely striate, with well-impressed suture; aperture subcircular, lip large, white, its extremities converging, with an obtuse tubercular tooth on the basal edge; base convex, umbilicus large, profound; light horn color, usually broadly banded with chestnut above, with numerous narrow bands on the base, sometimes without bands. Diam. 28 mill.

*Middle and Western United States, west of the Appalachian Mts., South to Mississippi.*

*H. Richardi*, Fer. is a synonym: *H. bulbina*, Desh., is probably a juvenile.

H. Sayi, Binney. Pl. 33, figs. 6–8, 5.

Orbicularly depressed, whorls 5–6, thin, regularly obliquely striate; aperture suborbicular, lip white, narrowly reflected, tubercularly dentate on the base, parietal wall toothed; umbilicus moderate, deep; pale horn color, without bands.

Diam. 22 mill.

A Northern Species, inhabiting Mountains and elevated districts, *Maine to Illinois, southward to Pennsylvania.*

It is *H. diodonta*, Say, not Mühlf.

Var. Chilhoweensis, Lewis. Pl. 33, fig. 5.

Shell much larger, with smaller or more rudimentary teeth, lip more widely reflected on the base. Diam. 1·4 inches.

*Mts. of N. Carolina, and E. Tennessee.*

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H. Usambarica, Craven. Pl. 32, figs. 100–2.

Umbilicated, closely, flexuously lirate, brown above, lighter colored below, glossy; whorls 6, the last not descending; lip thickened and slightly reflected, aperture pale purplish white. Diam. 1 in.

*Usambara Country, Eastern Africa.*

Geographically widely sundered from this group; of which it can scarcely be a member. The author writes that it "has more the

appearance of some of the North American forms than of the African."

Section VII, ATOPA, Albers, 1850.

Subsection I, ATOPA, (restricted).

H. CHARPENTIERI, Pfr. Pl. 33, figs. 9, 10.

Widely umbilicated, somewhat solid, obliquely costulate, scarcely shining, greenish corneous; whorls 5½, slowly increasing, moderately convex, the last rounded, descending in front; aperture nearly horizontal, whitish within, unarmed, lip widely expanded and reflected, margins converging. Diam. 27·5 mill.

*Ceylon.*

H. PETTOS, Martens. Pl. 34, figs. 36–38.

Very widely umbilicated, closely granulosely striate, light fuscous; whorls 8, narrow, the last angulate above, rounded below, a little descending in front; aperture diagonal, with continuous, thickened, shortly expanded lip, separated above from the parietal wall only by a small sinus. Diam. 14 mill.

*Himalaya Mts. India.*

H. RIVOLII, Deshayes. Pl. 33, figs. 11, 12.

Widely umbilicated, somewhat solid, obliquely costulate above, striate below, shining, greenish brown, spire immersed, but the apex a little raised; whorls 5, convex, the last dilated, tubiform and deflected in front; aperture rather oblique, with three parietal laminæ, of which the middle one is strong, curved, elongate and the others small and deeper, there are also three subequal (sometimes a fourth smaller) deep-seated palatal teeth. Diam. 24 mill.

*Ceylon.*

*H. carabinata,* Fer. is a synonym.

H. HUMBERTI, Brot. Pl. 33, figs. 22, 23.

Widely, deeply umbilicated, somewhat solid, costulate-striate above, scarcely striate below, shining, olive-brown; whorls 5, scarcely convex, the last descending in front; aperture oblique, obtusely heart-shaped, with a strong central parietal lamella, and a short deep-seated palatal one not visible exteriorly, margins of the light olivaceous-brown peristome joined by an elevated callus, subdentate above, with a four-sided tooth below. Diam. 25 mill.

*Ceylon.*

H. ANAX, Benson. Pl. 33, figs. 16–18.

Widely umbilicated, somewhat solid, obliquely costulate-striate above, striate below, a little shining, dark chestnut color, lighter below; whorls 5, convex, the last dilated, and deflected in front; aperture suboblique, rounded oblong, with two parietal lamellæ, the upper one long, entering, sinuate, the lower one shorter. deeper, obliquely sinuate, with three rather deep, parallel palatal teeth, lip extremities joined by a white callus, inferior margins with a subdentate thickening. Diam. 23 mill.

*Mts., Travancove, India.*

H. ERRONEA, Albers. Pl. 33, figs. 19–21.

Widely umbilicated, irregularly revolving, rather solid, costulate striate above and chestnut color, dark olivaceous, shining, shining and scarcely striate below; whorls 5, scarcely convex, the last somewhat gibbous opposite the aperture, tumid and slightly descending in front, inflated below; aperture with three parietal lamellæ, of which the middle one is elongate, strong, the others deeper and scarcely visible, palate with three deep, flexuous lamellæ, the middle one conspicuous, the others visible through the shell, lip white, callus shortly reflected, upper and columellar margin subdentately thickened. Diam. 24 mill.

*Ceylon.*

Is *H. Rivolii*, Pfr. in part.

H. ODONTOPHORA, Benson. Pl. 33, figs. 24–26.

Widely umbilicated, rather solid, chestnut color, or brownish yellow, obliquely, thinly, costulate-striate above, concave, striate and shining below; whorls 4, somewhat convex, the last more convex in front, dilately deflected in front, inflated below; aperture with two parietal lamellæ, the upper one curved, the lower shorter, and deeper seated, palatal teeth four, semilunar or sinuate, visible from the aperture and through the shell, peristome purplish white or chestnut, callous, shortly reflected, upper and lower margins subdentately thickened. Diam. 22–26 mill.

*Ceylon;* Mts., 4500 ft. alt.

H. PULVINARIS, Gould. Pl. 33, figs. 29–31.

Very widely umbilicated, obliquely striate, yellowish brown; whorls 6, scarcely convex above, the last obtusely biangulate, deflected but not dilated in front; aperture oblique, elliptically lunate, lip expanded, with nine teeth in the throat.

Diam. 15–18 mill.

*Hong Kong and Canton, China.*

H. MULTISPIRA, Mollendorff. Pl. 33, figs. 27, 28.

Dextral, thin, subpellucid, yellowish corneous, a little shining, perspectively umbilicated, obtusely angulated, closely striated above, smoother below; whorls 7½, the last scarcely dilated, very shortly descending; palate with seven short parallel lamellæ, with a strong transverse lamina on the parietal wall. Diam. 8–11 mill.

*Prov. Hunan, China.*

H. FIMIBRIOSA, Martens. Pl. 34, figs. 41–43; 32–35.

Perspectively umbilicated, thin, subpellucid, reddish brown, angulated, lamellately rugose above, becoming ciliated on the periphery, base smooth; whorls 6, slowly increasing, the last inflated below, with a yellowish band; palate with five parrellel lamellæ below the periphery and one very short one above it, and a strong lunar lamina on the parietal wall. Diam. 13·5–15 mill.

*Prov. Hunan, China.*

Var. EMORIENS, Gredler. Pl. 34, figs. 32–35.

Smaller, with obtuse carina, base without white band, lip narrower. Diam. 7–8 mill.

Is *H. fimbriosa*, Hende (in part) not Martens.

Var. NANA, Mollendorff.

Smaller than Var. emoriens, the last whorl with more acute peripheral angle. Diam. 6 mill.

H. CUTISCULPTA, Mollendorff. Pl. 34, figs. 39, 40.

Perspectively umbilicated, thin, subpellucid, corneous, angulated, rugosely striate, decussated by spiral lines above, the periphery distantly laciniated, base striated; whorls 7, slowly increasing, the last not dilated, nor descending; palate with five short parallel lamellæ, with a dilated and thickened parietal lamina.

Diam. 7 mill.

*Prov. Fudshien, China.*

H. DIPTYCHIA, Mollendorff. Pl. 34, figs. 46–48.

Perspectively umbilicated, thin, subpellucid, yellowish, angulated, with distant membranous ribs, extended across the base as well as top, and prominent on the peripheral angle, above granulated and spirally lineated between the costæ, interstices smooth below, whorls 6–6½, the last not descending; palate with five short paralled lamellæ, and sometimes a sixth, very short, at the suture, parietal wall with two approximate vertical lamellæ. Diam. 6·5 mill

*Prov. Guidshou, China.*

H. STENOCHILA, Mollendorff.

Perspectively umbilicated, costulate striate, decussated by rugulose spiral lines, brownish corneous; whorls 7, the last shortly reflected in front, the periphery obtusely angulated; palate with five short lamellæ, parietal wall with a strong vertical lamina and five small teeth in front of it. Diam. 8·5 mill.

*Badung, Prov. Hubei, China.*

Differs from the next species in being smaller, with more numerous whorls, in the sculpture being alike above and below, and the absence of peripheral fimbriæ.

H. MURATA, Heude. Pl. 33, figs. 13–15.

Widely umbilicated, opaque above, pellucid below, brownish, with rugose striæ above, fimbriated on the peripheral angle; whorls 5½, palate with four principal short lamellæ, with small denticles above and below, parietal wall with a vertical lamina and five teeth in front of it.

*Tchenkeou, China.*

Subsection II, PLECTOPYLIS, Benson, 1860.

H. SERICA, Austen. Pl. 34, figs. 49–52.

Dextral, openly umbilicated, light corneous brown, with oblique narrow bands above, epidermis thin; whorls 7, narrow, the last descending in front; lip white, reflected, continued on the parietal wall, aperture with six palatal teeth, a third of a whorl within, the upper small, a bifurcate lamella on the parietal wall.

Diam. 12·5 mill.

*Burrail Mts., India.*

H. OGLEI, Austen. Pl. 36, figs. 29–31.

Dextral, widely umbilicated, pale brown, with close-set sienna brown markings crossing the whorls, epidermis thick, rough, somewhat nacreous; whorls 8, the last slightly descending towards the oblique aperture; peristome slightly reflected, white, continued by a slight parietal callus, there is a single vertical parietal lamina, with buttress-like supports on the posterior side above and below, palatal teeth six, the sixth longer, double. Diam. 16 mill.

Near *Sadiya, Assam.*

H. PINACIS. Benson. Pl. 34, figs. 53–55.

Sinistral, widely umbilicated, roughly, obliquely plicate-striate above, with close spiral liræ, below with flexuous oblique, decussated

by spiral striæ, corneous, under a dark scabrous epidermis; whorls 7½, narrow, slowly increasing, the last shortly descending in front, subcarinate above, the carina hispid in young specimens, convex below, compressed around the conical umbilicus; lip reflected, whitish, its extremities joined by a parietal callus, aperture with a simple vertical and no horizontal parietal lamella, and six palatal plicæ. Diam. 14 mill.

*Sikkim region, Himalayas, India.*

H. Munipurensis, Austen. Pl. 34, figs. 56–58.

Dextral, widely and deeply umbilicated, thick, light ochraceous brown, distantly maculated above; whorls 7, flat, the last constricted behind the aperture and scarcely descending; peristome white, slightly reflected, the margins joined by a parietal callus, a vertical parietal lamella, a third of a volution from the mouth, palatal teeth 7. Diam. 11 mill.

*Munipur, India;* alt. 3000–4000 ft.

H. Laomontana, Pfr. Pl. 34, figs. 60–62.

Very widely umbilicated, solid, closely striate, brownish; whorls 6½, scarcely striate, slowly increasing, periphery rounded, subdilated and deflected in front, base strongly striate in front; peristome, whitish, thickened, a little reflected, its margins joined by a parietal callus; palatal plicæ simple, parietal wall with a simple vertical lamina and no horizontal ones. Diam. 32 mill.

*Lao Mts., Cambodia.*

H. macromphalus, W. Blanford. Pl. 34, figs. 65–68.

Sinistral, widely umbilicated, rather thin, light corneous, with incremental curved plicæ, decussated by spiral liræ, at the periphery and below striulate, almost smooth, with a few spiral striæ around the umbilicus; whorls 4½–5½, flattened, narrow, the last scarcely wider, subangulate above, slightly descending in front; peristome whitish, a little thickened and reflected, the converging margins joined by a thin callus, a vertical parietal plica and biseriate, duplicate palatal plicæ. Diam. 6·5 mill.

*Khasi Mts.* and near *Darjiling, India.*

H. plectostoma, Benson. Pl. 34, figs. 69, 70.

Sinistral, moderately umbilicated, whitish, under a deciduous corneous epidermis; whorls 6, radiately plicate, decussated by close elevated spiral lines, the last angulated above, with a few elevated

lines below the angle; parietal vertical lamina with transverse adjuncts above and below, palatal plicæ biseriate. Diam. 9 mill.

*Darjiling and Khasi Mts., India.*

It is *H. prodigium*, Bens. Mss. in British Museum.

H. Andersoni, W. Blanford. Pl. 34, fig. 71; Pl. 35, figs. 74, 75.

Dextral, very widely umbilicated, somewhat solid, whitish, under a heavy brownish epidermis, fringed at the periphery, below the epidermis decussated by radiating and spiral striæ, the latter obsolete on the base; whorls 7½–8, narrow, flattened above, somewhat convex below, compressed around the umbilicus, the last angulated above, constricted and slightly descending in front; peristome white, expanded, parietal lamina vertical, stout, the duplicate palatal plicæ biserial, callously connected. Diam. 26 mill.

*Bhamo, in Ava; Hoetone, in Yunan.*

H. clathratula, Pfr. Pl. 34, figs. 72, 73.

Widely umbilicated, acutely carinated, clathrate above by distinct ribs and elevated spiral liræ, barely shining, horn colored; whorls 5, subequal, scarcely convex, base radiately striated, subinflated around the umbilicus, lip simple, acute; parietal lamina vertical, palatal plicæ biseriate, the posterior series strong, oblique.

Diam. 5·5 mill.

*Ceylon.*

*H. puteolus*, Benson is a synonym.

H. retifera, Pfr. Pl. 34, figs. 63, 64.

Moderately umbilicated, plicate-striate, with several elevated spiral lines, carinated, diaphanous, slightly shining, light horn color; whorls 6½, somewhat flattened, base subplane, striate; lip simply acute; parietal plica strong, vertical, simple, palatal plicæ biseriate, the posterior series strong, vertical. Diam. 7 mill.

*Nilgherri Mts., India.*

H. Nagaensis, Austen. Pl. 35, figs. 78, 79.

Sinistral, widely umbilicated, yellowish brown, epidermis thick, rudely striated; whorls 7, flattened, narrow, the last descending in front; lip somewhat thickened, white, reflected, the margins joined by a thick parietal callus, slightly incised at the junction; parietal lamina strong, vertical, with a long horizontal lamina behind it, with six palatal lamellæ. Diam. 12 mill.

*Prowi, Naga hills, India.*

H. PSEUDOPHIS, W. Blanford. Pl. 35, figs. 80, 81.

Sinistral, widely umbilicated, rather thin, light ochraceous; whorls 7, the last constricted behind the aperture and suddenly deflected; peristome reflected, the extremities joined by an elevated, curved callus, slightly incised above and below, vertical parietal lamina giving out a posterior horizontal extension, with an additional long horizontal lamina above and a shorter one below, six palatal plicæ. Diam. 12·5 mill.

*Thayatmyo, Pegu.*

H. BRACHYDISCUS, Austen. Pl. 36, figs. 32–34.

Dextral, with wide, shallow umbilicus, rather thick, dull umber brown, epidermis thick, with cloth-like texture, ribbed, in young, fresh shells the upper outer margin has a close, regular, epidermal fringe; whorls 7, the last rather flat on the side and angular above, descending at the very oblique aperture; peristome strongly réflected, thickened, white, the margins connected by a well-raised ridge, notched above and below, from the upper middle portion of this proceeds a long horizontal lamella towards the vertical parietal lamina, but terminates and then is again developed, becoming thicker and higher as it approaches the latter, from the lower end of the vertical lamina proceeds a short lamella towards the aperture, and a very short, slight, free lamina is just below the vertical barriers, six simple palatal teeth. Diam. 22 mill.

*Moulmein, Tenasserim, etc.*

H. PERARCTA, Blanford. Pl. 35, figs. 91–95.

Sinistral, widely umbilicated, rather thin, white, sinuously transversely striate, obsoletely decussated; whorls 6, convex above and on the periphery, subcompressed and suddenly deflected at the aperture; peristome white, connected by a parietal curved callus, with median vertical lamina, a strong transverse one above, a longer, narrower transverse one below, and one or two behind it, seven palatal plicæ. Diam. 11 mill.

*Ava.*

H. SHANENSIS, Stoliczka. Pl. 36, figs. 10, 11.

Whorls 6½, obliquely, and obsoletely concentrically striate, periphery rounded, suture margined; light brown; arrangement of parietal laminæ similar to *H. perarcta*. Diam. 21 mill.

*Burmah.*

*H. trilamellaris*, Austen is a synonym, according to its author (Jour. As. Soc. xlviii, 2).

H. BRACHYPLECTA, Benson. Pl. 35, figs. 76, 77, 82, 83.

Dextral, widely umbilicated, with minute curved striæ, obsoletely decussated by very minute spiral striæ, opaque, dull reddish chestnut, the apex amber colored, lighter colored below; whorls 6, a little convex, slowly increasing, the last rounded, and subangulated above near the suture, descending in front; aperture somewhat ear-shaped, purplish, the peristome a little expanded, brownish, the remotely converging margins joined by a callus; vertical laminæ two, with a short horizontal lamina, six palatal plicæ.

Diam. 22 mill.

*Moulmein, Burmah.*

H. FEDDENI, Blanford. Pl. 35, figs. 84–87.

Sinistral, very widely umbilicated, thin, whitish, irregularly obliquely sculptured; whorls 6½–7, narrow, a little convex above, the last much broader, the periphery and base rounded, abruptly deflected in front; peristome somewhat thickened and expanded, the margins joined by a rib, vertical laminæ two connected above and below by horizontal laminæ, with paralled free laminæ above and below these. Diam. 16 mill.

*Near Prome, India.*

H. SHIROIENSIS, Austen. Pl. 35, fig. 90.

Sinistral, openly umbilicated, thin, brownish, minutely striated; whorls 6, the last rounded, acutely compressed and descending at the aperture; peristome white, continuous, reflexed, vertical lamina with a short horizontal support below, with a free lamella below this, and a longer and shorter lamella above them, four horizontal palatal teeth, with a double notched vertical tooth between the third and fourth. Diam. 7·5 mill.

*Shiroifurar, N. E. of Munipur, India;* alt. 8000–9000 ft.

H. LEIOPHIS, Benson. Pl. 35, figs. 88, 89.

Sinistral, widely umbilicated, rather thin, with oblique, curved rugose striæ, decussated by a few spiral lines; whitish, under a scaly brownish horn-colored epidermis; whorls 5½–6½, narrow, the last angulated above the periphery, deflected in front, base rounded; palatal plica double, parietal horizontal laminæ two additional to the lower free one. Diam. 11–14 mill.

*Near Thyet-Mio.*

H. REFUGA, Gould. Pl. 35, figs. 1, 2.

Sinistral widely umbilicated, somewhat solid, minutely obliquely rugose and concentrically striated above, white, under a yellowish corneous deciduous epidermis; whorls 6½, narrow, shining, the last deflected in front, base subangulate, concave; peristome shortly, abruptly reflected, callous, white, the margins joined by sigmoid parietal, callus, disposition of teeth as in the preceding species.

Diam. 17·5 mill.

*Burmah.*

Var. DEXTRORSA, Austen. Fig. 2.

H. KARENORUM, Blanford. Pl. 35, figs. 96–100.

Sinistral, rather widely umbilicated, solid, white, with somewhat irregular light chestnut strigations, decussated by sinuous transverse and spiral striæ; epidermis thin, corneous; suture somewhat narrowly margined; whorls 6, narrow, the last angulated above the periphery, rounded below, deflected and slightly compressed at the aperture; lip white, reflected, the margins joined; parietal and palatal processes both compound, a single horizontal parietal lamina in addition to the lower free one. Diam. 13 mill.

*Pegu.*

H. BRAHMA, Austen. Pl. 36, figs. 35–37.

Sinistral, moderately umbilicated, ochraceous-brown, finely regularly striated; whorls 7, the last angular above and rounded below, a little compressed behind the aperture and hardly descending; peristome slightly reflected and thickened, white, connected by a parietal callus, parietal vertical lamina strong, with a short horizontal lamella at the lower end, above this are two other parallel short, and usually free lamellæ, there is a very thin, thread like lower free lamella extending to the peristome and uniting with the parietal callus, palatal plicæ in two rows, the outer one of four rather large plications, behind it, another row of fourteen minute, tooth-like processes. Diam. 9 mill.

*Brahmakhund, Eastern Assam;* alt. 1000 ft.

H. CYCLASPIS, Benson. Pl. 35, fig. 9.

Sinistral, widely umbilicated, smooth, finally obliquely rugate above, brownish, suture margined; whorls 7½, slowly increasing, the last not descending, acutely compressed-carinate, base convex, subangulate around the umbilicus; peristome expanded, reflected,

the margins joined by a parietal callus; armature similar to *H. Karenorum.*

*Near Moulmein, Tenasserim.*

*H. catinus,* Benson (not of Pfeiffer) is a synonym.

H. ACHATINA, Gray. Pl. 35, figs. 3–5, 7, 8.

Sinistral, very widely umbilicated, smooth, reddish brown above, maculated and flamed with whitish, base pale; whorls 6½, the last subcompressed on the sides, suddenly deflected in front; peristome brownish, the margins joined by a prominent parietal callus, teeth of the aperture similar in arrangement to *H. Karenorum,* but with an additional horizontal parietal lamina.

*Burmah.*

H. *repercussa* of Gould. is a synonym.

H. ANGUINA, Gould. Pl. 35, fig. 6.

Smooth, sinistral, chestnut color, radiated below; whorls 5½, the last subangulated at the periphery, dentition of aperture similar to last species. Diam. 1 inch.

*Tavoy, Burmah.*

H. INVIA, Heude. Pl. 36, figs. 17–20.

Dextral, whorls 5½, with impressed suture, vitreous shining, the last not angulated but laterally compressed, a little descending; aperture with four palatal plicæ, and one smaller close to the umbilicus, vertical parietal lamina strong. Diam. 16 mill.

*Tchenkeou, China.*

The armature is not fully described or figured by the author of this species.

H. SCHISTOPTYCHIA, Mollend. Pl. 36, figs. 21, 22.

Dextral, decussately costulately striate above, smooth below, brownish corneous; whorls 6½, the last laterally compressed, with obtusely angulated periphery, deflected anteriorly; parietal wall with a vertical lamina, crossed by a horizontal short one at its extremities, palate with two series of five plicæ. Diam. 6·5 mill.

*Prov. Hunan, China.*

H. LAMINIFERA, Mollend. Pl. 36, figs. 23, 24.

Dextral, costulate-striate and spirally lineated above, smooth below; whorls 7, the last with acutely angulated, laciniated periphery; parietal vertical lamina, with a short transverse lamella, palatal plicæ 6, short, in a single series. Diam. 14 mill.

*Prov. Hubai, China.*

H. RESERATA, Heude. Pl. 36, figs. 38–41,

Dextral, obliquely costulate, smoother below, periphery angulated and laciniated; whorls 6, the last descending; peristome subcontinuous, vertical lamina with small denticles in front of it, palate with four lamellæ, and a smaller tooth near the umbilicus.

Diam. 15 mill.

*Tchenkeou, China.*

H. SCHLUMBERGERI, Morlet. Pl. 36, figs. 25–28.

Dextral, shining, brownish, with close coarse striæ above, crossed by slight spiral lines, smooth below; whorls 7, subcarinated above, subangulate below, the last not descending anteriorly; aperture with the usual parietal entering plicæ, and a deep-seated large vertical lamina, and another much smaller transverse one, palatal teeth six, minute. Diam. 26 mill.

*Tonkin.*

H. BIFORIS, Heude. Pl. 36, figs. 12–16.

Dextral, whorls 6½, slowly increasing, the last deflected in front, brownish, spirally plicately striate, the angulated periphery laciniated; parietal vertical laminæ two, joined above and below by transverse ridges, with a free transverse lamina below, palate with four teeth, and a smaller one close to the umbilicus.

Diam. 15 mill.

*China.*

*Unfigured Species.*

H. JUGATORIA, Ancey. *China.*

H. REVOLUTA, Pfr. *Andaman Is.*

## Group VI, VALLONIA, Risso. 1826.

Shell umbilicated, depressed, minute, diaphanous; whorls 4, or less; aperture obliquely subcircular, with a white reflected peristome, the margins converging.

H. PULLCHELLA, Müller. The few species occur in the temperate and colder countries of the northern hemisphere. The type inhabits *North America*, *Europe*, and *Northern Asia*, and has been extensively spread by commerce in other countries.

The principal synonyms are *Zurama*, Leach, *Amplexus*, Brown, *Chilostoma*, Fitz. (in part), *Glaphyra*, Albers and *Lucena*, Moquin-Tandon.

## Group VII, HELICELLA, Ferussac. 1819.

Shell generally umbilicated, the peristome simple or slightly expanded, usually thickened on its inner margin, rarely dentate Distribution nearly universal, but mostly *European.*

### Section I FRUTICICOLA, Held. 1837.

Umbilicate or perforate, depressed-globose, often pilose; whorls 5–7, a little convex; aperture widely lunar or lunately rounded, peristome acute, shortly expanded, a little thickened within, basal margin reflected.

Mostly *European.*

The synonymy includes *Hygromia*, Risso, *Bradybœna*, Beck, *Hygromanes* (Fer.) Gray.

Subsection I, PETASIA, Moquin Tandon. 1855.

Narrowly perforate, turbinately globose; whorls 6–8, narrow, the last not descending; aperture obliquely lunate, peristome patulous or subreflected, labiate and bidentate within. H. BIDENS, Chemn.

*Europe.*

*Dibothrion*, Pfeiffer is a synonym.

Subsection II, TROCHISCUS, Held. 1837.

Basal lip lamellarly thickened within. *H. edentula*, Drap.

*Europe.*

Subsection III, TRICHIA, Hartmann. 1840.

Depressed, narrow whorled, usually pilose, columellar margin callous. H. HISPIDA, Linn.

*Europe.*

*Bradybœna*, Stabile, is a synonym.

Subsection IV. ZENOBIA, Gray, 1821.

Conoidal, perforate, smooth, translucent, peristome simple. H. GLABELLA, Drap.

*Europe.*

Subsection V. MONACHA, Hartmann. 1840.

Conical, perforate, smooth, translucent, peristome labiate and subreflected. H. INCARNATA, Müll.

*Europe.*

Subsection VI, CARTHUSIANA, Kobelt. 1871.

Perforate, subglobose-depressed, inflated, corneous white, translucent, peristome distinctly labiate. H. CARTUSIANA, Müll.

*Europe.*

Subsection VII, NUMMULINA, Kobelt. 1871.

Lenticular, with carinate periphery, costulate-striate. H. NUMMUS, Ehrenb.

*Syria, Caucasus.*

Subsection VIII, EULOTA, Hartmann. 1842.

Inflated, subglobose. H. FRUTICUM, Müll.

*Europe*

The typical group of Fruticicola.

*Theba*, Risso. (in part) is a synonym.

Subsection IX. DORCASIA, Gray, 1845.

Moderately umbilicated, globosely turbinate, or depressed globose, rugosely striate; whorls 4½–5, the last large, inflated, more or less depressed in front; aperture lunately ovate, the peristome thickened, subreflected or expanded, columellar margin dilated, reflected. H. GLOBULUS, Müll.

*Cape of Good Hope, Southern Asia* etc.

*Galaxias*, Beck, may be included: it has priority, but is preoccupied in fishes.

Subsection X, SATSUMA, A. Ad. 1868.

Conoidal, base more or less flattened, basal portion of periphery nearly straight. H. JAPONICA, Pfr.

*Japan, China.*

*Fruticotrochus*, Kobelt is a synonym.

Subsection XI, HISPIDELLA, Lowe. 1852.

Surface hispid. H. NUBIGENA, Lowe.

*Canary Is.*

Subsection XII, CILIELLA, Mousson, 1872.

Corneous, somewhat lenticular, granular piliferous, filamentously carinate. H. LEPROSA, Shuttl.

*Canary Is.*

Section II, XEROPHILA, Held. 1837.

Umbilicated, or rimately perforate, turbinately or globosely depressed, calcareous, usually banded, the apex corneous; whorls 5–6, slowly increasing; aperture lunately rounded or subcircular, peristome acute, labiate within.

Mostly *European.*

Subsection I, EUPARYPHA, Hartmann. 1840.

Perforate, depressed globose, usually banded; whorls 5, the last

inflated, aperture dilated-lunar, labiate within, the columellar margin reflected. H. PISANA, Mull.

Mostly *European*, but with representatives in *Southern and Lower California.*

Subsection II, HELIOMANES, Moquin Tandon. 1855.

Globose, opaque whitish, with bands of darker color; aperture semilunar. H. VARIABILIS, Drap.

Mostly *European.*

Subsection III, HELICELLA, Moquin Tandon. 1855.

Moderately or rather widely umbilicated, whitish, opaque; aperture semilunar, peristome usually labiate within. H. CESPITUM, Drap.

*Mostly European.*

Subsection IV, JACOSTA, Moquin Tandon. 1855.

Shell opaque, glabrous, whitish; umbilicated sublenticular, with carinate periphery, aperture oval, peristome labiate. H. EXPLANATA, Müll.

*Europe, N. Africa, Caucasia.*

*Crenea*, Albers (in part).

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Additional subsections of Fruticicola will be included in the succeeding volume of the Manual.

Group VII, VALLONIA, Risso. 1826.

H. PULCHELLA, Müller. Pl. 38, figs. 10–15.

Umbilicated, subdepressed, whitish or greenish white, shining, smooth; whorls 3½ a little dilated but not deflected in front; aperture, subcircular, lip reflected, white, margins approaching.

Diam. 3 mill.

*Europe, Madeira, Northern Asia, United States, China* and *Japan* (introd.), *Australia* (introd.),

The principal synonyms are *H. paludosa*, Walker, *H. nitidula*, Studer, *H. crystallina*, Dillw., *H. Potua*, Chier., *H. rosalia*, Risso, *H. minuta*, Say (fig. 13).

Var. COSTATA, Müller. Figs. 14, 15.

Membranously costate.

The synonymy includes *H. crenella*, Montg; and *H. Alexandræ*, Cox (fig. 12), *Australia.*

Var ASIATICA, Nevill.

Larger than Var. costata, and more distinctly subangulated on the base, around the umbilicus.

*Eastern Turkestan.*

Var. LADACENSIS, Nevill.

Umbilicus finer, with closer, finer sculpture than Var. costata, aperture higher and more expanded, columella less oblique, base scarcely at all angular around the umbilicus, spire flatter, suture more excavated. Diam. 3·25 mill.

*Eastern Turkestan, Western Thibet.*

Nevill describes this as a doubtfully distinct species.

H. TENUILABRIS, Braun. Pl. 38, figs. 16, 17.

Differs from *H. pulchella* in having a higher spire, sometimes with acute apex, whorls 4½, the last scarcely dilated in front, peristome very shortly reflected, the aperture lower, etc.

Diam. 2·5–2·75 mill.

*Sweden, Arctic Europe.*

*H. adela,* Westerl, is a synonym.

H. PULCHELLULA, Heude. Pl. 38, figs. 18–20.

Whitish, rather widely umbilicated, conspicuously plicate-striate; whorls 3, the last rapidly enlarging, a little descending in front; peristome reflected, the extremities approaching.

Diam. 2·5 mill.

*Shanghai* and *Mts. of Ningkonofou, China.*

The oblique aperture, and wide umbilicus will distinguish it.

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H. TENERA and H. PATENS, Reinh. Unfigured. *Japan.*

## Group VII. HELICELLA, Fer. 1819.

### Section I. FRUTICICOLA, Held. 1837.

### Subsection I. PETASIA, Moquin-Tandon. 1855.

H. BIDENS, Chemn. Pl. 38, figs. 21–23, 27–29.

Covered perforate, corneous with a pellucid or light colored peripheral band; elegantly costulate-striate above; whorls 6–7, scarcely convex; aperture white or red lipped, the basal margin bidentate within, with corresponding external pits.

Diam. 9 mill.

*France, Germany, Sweden,* etc.

*H. bidentata,* Gmel., *H. fulva,* Beck, are synonyms.

Var. DIODON, Parr. Figs. 27–29.

Shell larger, somewhat more globose.

*Eastern Europe.*

*H. dibothrion*, Friv. is a synonym.

H. BICALLOSA, Frivaldsky. Pl. 38, fig. 24.

Umbilicus nearly covered, shell thin, striulate, shining, reddish corneous; whorls 8, a little convex, slowly increasing, the last subangulate and white banded on the periphery, scarcely descending in front; peristome acute, simple above, basally shortly reflected, with a broad basal interior callus produced into two teeth, and exterior scrobiculation. Diam. 10 mill.

*Siberia.*

Subsection TROCHISCUS, Held. 1837.

H. COBRESIANA, Alten. Pl. 38, figs. 25, 26, 44.

Perforate, corneous, pubescent; whorls 6, the last with whitish peripheral band; lip thickened, labiate within, with a basal tooth. Diam. 10 mill.

*Middle Europe.*

*H. unidentata*, Drap., *H. monodon*, Fer. *H. ventricosa*, Jan, *H. unidens*, Ziegl., *H. Villæ*, Mühlf. are synonyms.

Var. ALPESTRIS, Clessin.

Small, spire depressed, last whorl moderately carinated, more convex below.

*Tyrol.*

Var. ANODONTA, Tschapak. Fig. 44.

Tooth not developed.

*Styria.*

H. EDENTULA, Drap. Pl. 38, figs. 31–33.

Subperforate, somewhat solid, granularly striate, subpilose, corneous; whorls 6, convex, slowly increasing, the last scarcely descending in front, whitish banded, base flattened; peristome labiate within, callously dilated on the base. Diam. 8 mill.

*Middle Europe.*

The synonyms are *H. depilata*, Drap., *H. liminifera*, Held.

H. LEUCOZONA, Ziegler. Pl. 38, figs. 34, 35.

Perforate, light reddish brown, with a pellucid peripheral band, lightly striated; whorls 5–6, a little convex, the last not descending; peristome scarcely patulous, white-lipped, basal margin strict. Diam. 12 mill.

*Northern Italy, Southern Austria.*

*H. crassilabris* Muhlf. and *H. rutilans* and *H. coaduxata* Ziegl. are synonyms.

Var. OVIRENSIS, Rossm. Fig. 34.

Smaller, darker, with a more distinct peripheral band, very slightly hispid.

*Carinthia; Bergamo, Italy.*

Var. DOLOPIDA, Jan.

Narrowly umbilicated.

Var. HETEROMORPHA, Westerl.

Subcovered perforate, turbinate, striate; whorls 7½, convex. Diam. 11 mill.

*Carinthia.*

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H. BOURYI, de Morgan. Pl. 38, figs. 36–38.

Narrowly umbilicated, turbinate, smooth; whorls 5–6, base a little flattened; peristome slightly reflected. Diam. 3 mill.

*Perak.*

The specimens were dead, and white; the color when living is uncertain.

Subsection III. TRICHIA, Hartman. 1840.

*European Species.*

H. HISPIDA, Linn. Pl. 38, figs. 39–42.

Moderately umbilicated, corneous, scarcely shining, shortly hispid, whorls 5–6, slightly convex, narrow; peristome patulous, white or pink lipped within. Diam. 10 mill.

*Northern and Middle Europe*; *Nova Scotia, Massachusetts* (introd.)

The synonymy includes *H. sericea*, C. Pfeiffer, *H. hispidula*, Jan, *H. glabella*, C. Pfeiffer, *H. Prevostiana*, Risso. The shell varies in height of spire, diameter, etc., and the coloring from whitish to reddish-brown, and these differences have been expressed in a number of varietal names, as *fusca, pallida, albina, conica, nitida*, etc., and the following:

Var. HISPIDOSA, Mouss.

Smaller, less depressed, basal margin of aperture well-curved, not thickened. Diam. 6–7, alt. 4 mill.

*Central Europe, Transcaucasia.*

Var. PRATENSIS, Baudon.

Var. SUBCŒLATA, Lessona.
Shell more depressed, spire low.

*Susa, Piedmont.*

Var. RIPULARUM, Lessona.
Whorls more convex than the type, umbilicus slightly wider.

Var. VULGARIS, Lessona.
Spire convexly elevated; very close to the type.

Var. TROCHIFORMIS, Lessona.
Turbinately elevated; umbilicus narrower.

Var. HEMISPHÆRICA, Lessona.
Spire convexly depressed, about as high as the type, whorls more oblique.

Var. SUBPLEBEIA, Lessona.
Spire conical, moderately elevated, umbilicus narrow; corneous, slightly marked with alternate chestnut and white markings.

Var. NANA, Jeffreys.
Small, depressed, the umbilicus wider and lip stronger.
Diam. 5·4 mill.

Monstrosities with scalariform spire and with reversed whorls have been observed.

H. VILLERSII, Malzine. Pl. 38, figs. 45–47.
Openly umbilicated, form of *H. hispida*, but more depressed, milk white, diaphanous, incremental striæ slight but distinct; whorls 4½.
Diam. 7–8 mill.

*Abbaye de Villers, Belgium.*

H. CONCINNA, Jeffreys. Pl. 38, fig. 34 (lower figure).
Widely umbilicated, light corneous or yellowish ash color, often with dull reddish strigations and a pale peripheral band, with scattered short, caducous hairs; whorls 6–7, slightly convex, with deep suture; peristome patulous, with an interior white callus.
Diam. 10 mill.

*Northern Europe.*

Some authors consider this a variety of *H. hispida*.

Var. GYRATUS, Westerl.
Shell brownish or ferruginous, much depressed, whorls very slowly increasing.

*Sweden.*

H. DEPILATA, C. Pfeiffer. Pl. 39, figs. 54–56.

Narrowly umbilicated, corneous, shining, striate, smooth above (hairs caducous), occasionally sparsely hairy below; whorls 6, narrow, the last obsoletely angular on the periphery, where it has a pellucid band; peristome white-lipped within. Diam. 8 mill.

*France, Northern Germany, Sweden, Russia?*

Is *H. concinna*, Dupuy (not Jeffreys), *H. sericea*, Var. Gysser, and *H. liberta*, Westerl.

H. GLOBUS, Lessona. Pl. 39, fig. 57.

Corneous, globose, with a faint peripheral carina, on which is a clear band, finely striated; umbilicus less open than in *H. hispida*; aperture semi-lunar; the base more convex than in *hispida*.

Diam. 7 mill.

*Turin.*

H. CRENOPHILA, Pfeiffer. Pl. 39, figs. 58–60.

Perforate. shining, diaphanous, corneous, striulate; whorls 5½, convex, regularly increasing, the last a little descending towards the aperture; peristome chestnut colored, white-lipped within.

Diam. 7 mill.

*Near Constantinople; Beirut, in Syria.*

H. MUSCICOLA, Bourg. (not Phil.) is a synonym.

Var. MERSSINÆ, Mousson.

A little larger, more depressed, reddish corneous, with subpilose points, perforation very minute. Diam. 9 mill.

*Merssina.*

H. OVULARIS, Bourg. Pl. 39, figs. 61–63.

Scarcely perforate, more globose than the preceding species, shining, diaphanous, corneous, elegantly costulate-striate; whorls 5½–6, convex, regularly increasing, the last suddenly descending towards the aperture, suture deep; peristome brownish, white-lipped within.

Diam. 8 mill.

*Near Adrianople, Turkey.*

H. PLEBEIA, Drap. Pl. 39, figs. 64, 65.

Narrowly umbilicated, hairy, corneous, with a whitish pellucid peripheral band; whorls 6, slightly convex; peristome white-lipped within. Diam. 14 mill.

*Carniola, Jura Mountains, Greece?*

*H. lurida*, *H. separanda*, and *H. pteridídea* of Ziegler are synonyms.

A variety *minor* occurs in Carniola; shell opaque, thinner.
Diam. 10·5 mill.

H. CŒLATA, Studer. Pl. 39, figs. 73, 74.

Widely umbilicated, lightly striate, (the juvenile densely pilose), thin, light corneous, diaphanous; whorls 6, very slowly increasing, flattened above, the last more convex below, subangulated around the umbilicus, the periphery obsoletely angulated, and with indications of a whitish band; peristome with interior white callus.
Diam. 9·5 mill.

*Germany.*

Pfeiffer considered it a variety of *H. rufescens*, Pennant.

H. RUFESCENS, Pennant. Pl. 39, figs. 66–68.

Umbilicated, striulate, light brownish; whorls 6, a little convex, the last with obtuse peripheral angle bearing a whitish band, not deflected in front; peristome patulous, remotely white-lipped within.
Diam. 11–14 mill.

*Middle* and *Northern Europe, Siberia, Canada* (introd).

*H. glabella*, Puton (= *H. putonii*, Clessin), *H. Pascali*, Mabille, (= *H. submontana*, Mabille), *H. circinnata*, Studer, *H. clandestina*, Hartm. *H. Altenana*, Klees, *H. corrugata*, Hartm., *H. turturum*, Gmel. are synonyms. Clessin has Vars. *rufa, alba* and *subcarinata*.

*H. Clessini*, Weinl. is also a synonym.

Var. DANUBIALIS, Clessin.

Subconic, subpellucid, whitish or light corneous, spire a little elate; whorls 6, rounded, the last without peripheral angle, with a lighter band, umbilicus wide. Diam. 10–11·5 mill.

*Banks of the Danube.*

*H. erecta, Hartm.*, and *H. Galiziensis*, Jeniss? are synonyms.

H. MONTANA, Studer. Pl. 39, figs. 69, 71.

Larger and more depressed than the preceding species, whorls more convex with deeper suture, periphery rounded, umbilicus wider, dark brownish. Diam. 14 mill.

*Germany, France*, etc.

Pfeiffer considered this a variety of *H. rufescens*. *H. circinnata*, Rossm. (in part), *H. striolata*, C. Pfr., and *H. rufina*, Parr., are synonyms.

Var. GRATIANOPOLITANA, Rambur. Fig. 71.

More depressed than the type, with rounder whorls and more sunken spire, but acute apex, sometimes with one or two light bands

below, otherwise light corneous or brownish, almost smooth or with sparse caducous hairs.

*Near Grenoble, France.*

Is *H. glabella*, Gras.

H. UMBROSA, Partsch. Pl. 39, figs. 75–78.

Rather widely umbilicated, thin, pellucid, corneous or yellowish white, slightly granulated; whorls 5, somewhat convex, the last obtusely angulated on the periphery, scarcely deflected in front; peristome simple, expanded, very thinly labiate within. Diam. 13 mill.

*Germany, Austria, Transylvania.*

H. BECASIS, Rambur. Pl. 39, figs. 79, 80.

Openly umbilicated, depressed, thin, pellucid, thinly hispid, greenish or brownish, irregularly plicate-striate above; whorls 4½, convex, slowly increasing, with deep suture, periphery rounded; peristome simple, thin, margins subapproximating. Diam. 6–8 mill.

*Near Mt. Canigou, France.*

H. CEDRETORUM, Debeaux. Pl. 39, figs. 81, 82.

Narrowly umbilicated, thin, yellowish brown, subopaque, very thinly striate, with sparse white hairs; whorls 5, subplane, apex yellowish, shining, suture deep; peristome white-margined within. Diam. 12 mill.

*Kabylaea.*

H. FILICINA, Schmidt. Pl. 39, figs. 83, 84.

Perforate, pellucid, purplish corneous, with very short, sparse hairs; whorls 6, slowly increasing, the last with whitish peripheral band; peristome rosy-lipped within. Diam. 9 mill.

*Carniola.*

Var. NUDATA, Westerl.

A little larger, lip obsolete, umbilicus slightly larger, no hairs.

*Bosnia.*

H. PIETRUSKYANA, Parreyss. Pl. 39, figs. 85, 86.

Narrowly umbilicated, thin, corneous, hispid, apex obsoletely mucronate; whorls 5, convex, the last obsoletely angulated, descending in front, suture profound; peristome simple, acute, scarcely sublabiate within, margins approaching. Diam. 9 mill.

*Hungary.*

*H. villosula*, Ziegler is a synonym.

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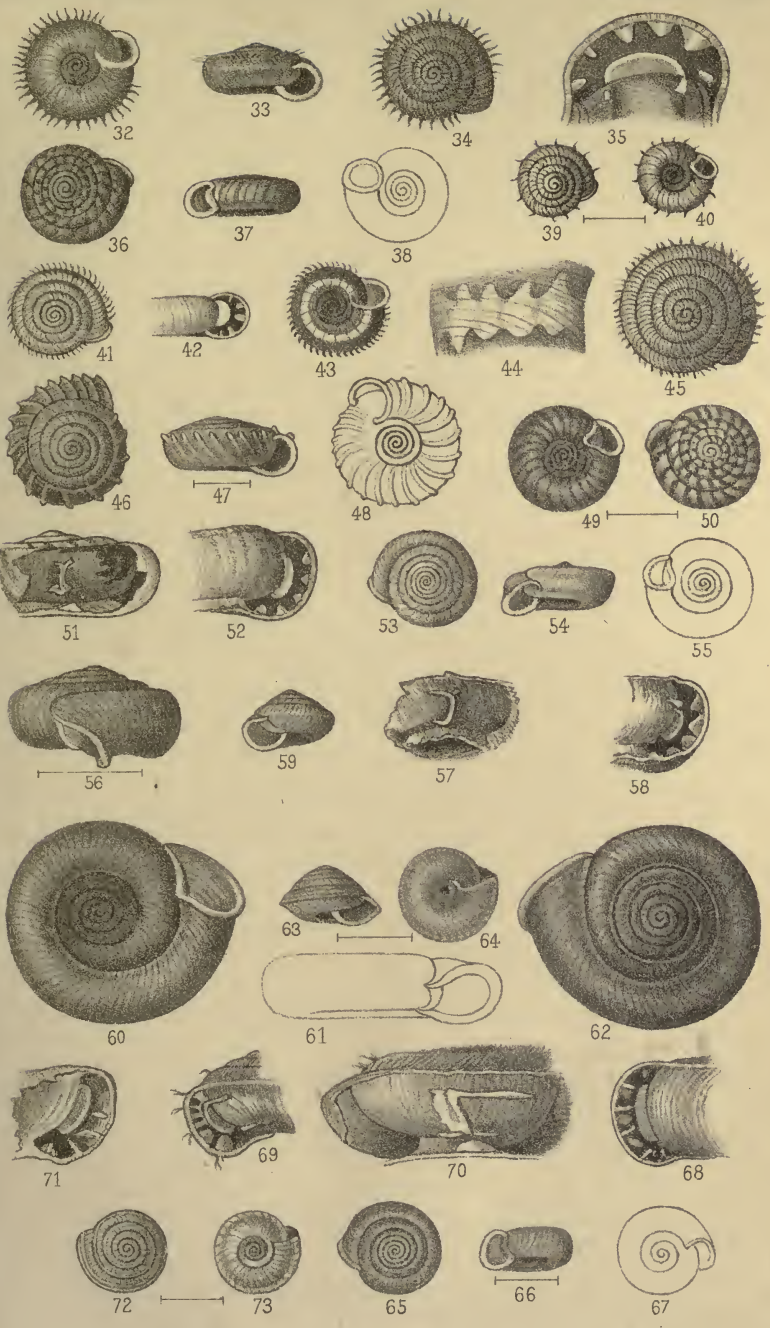
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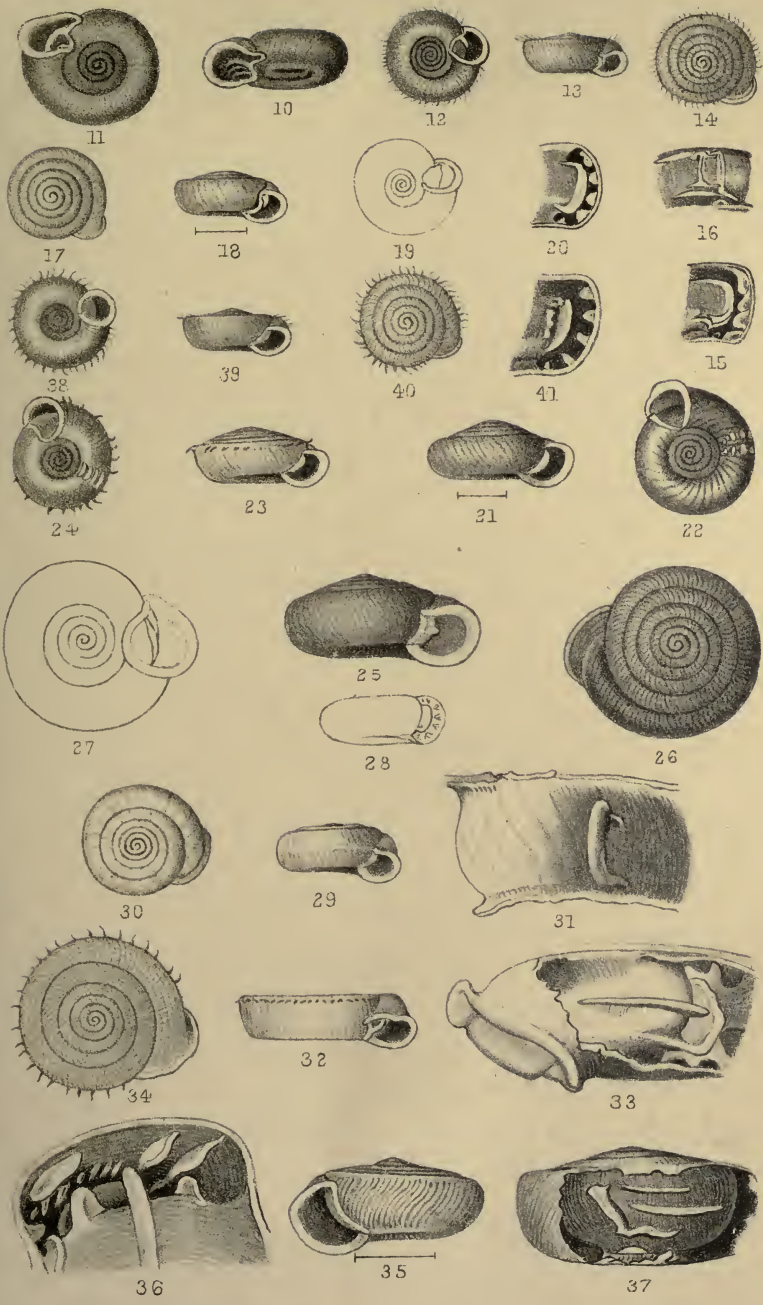
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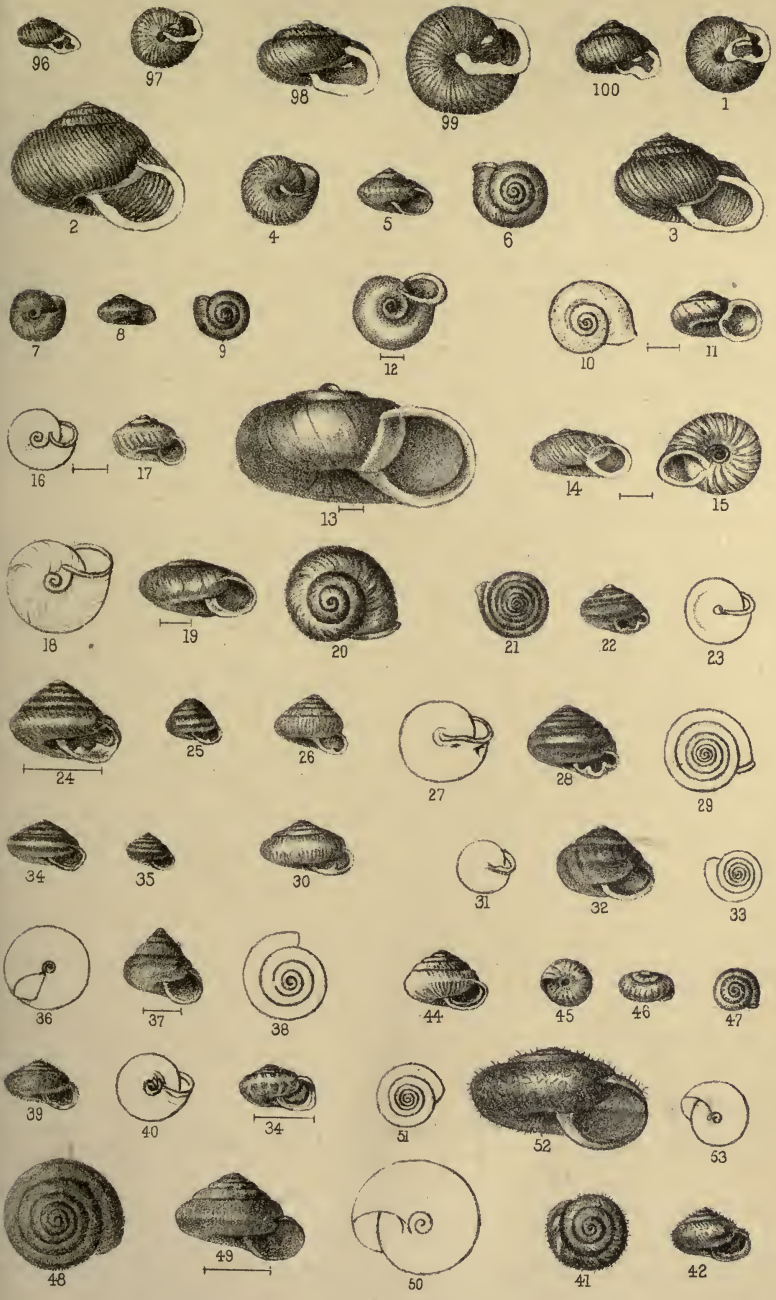
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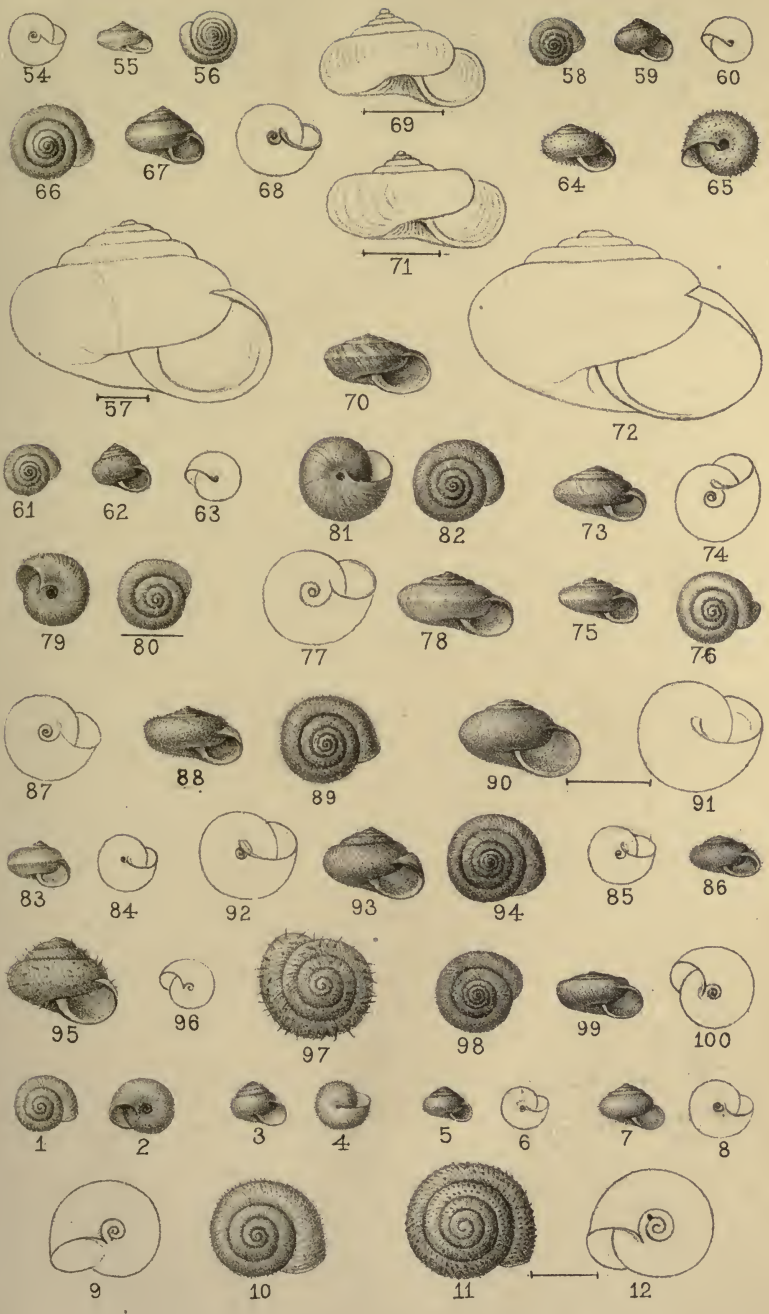
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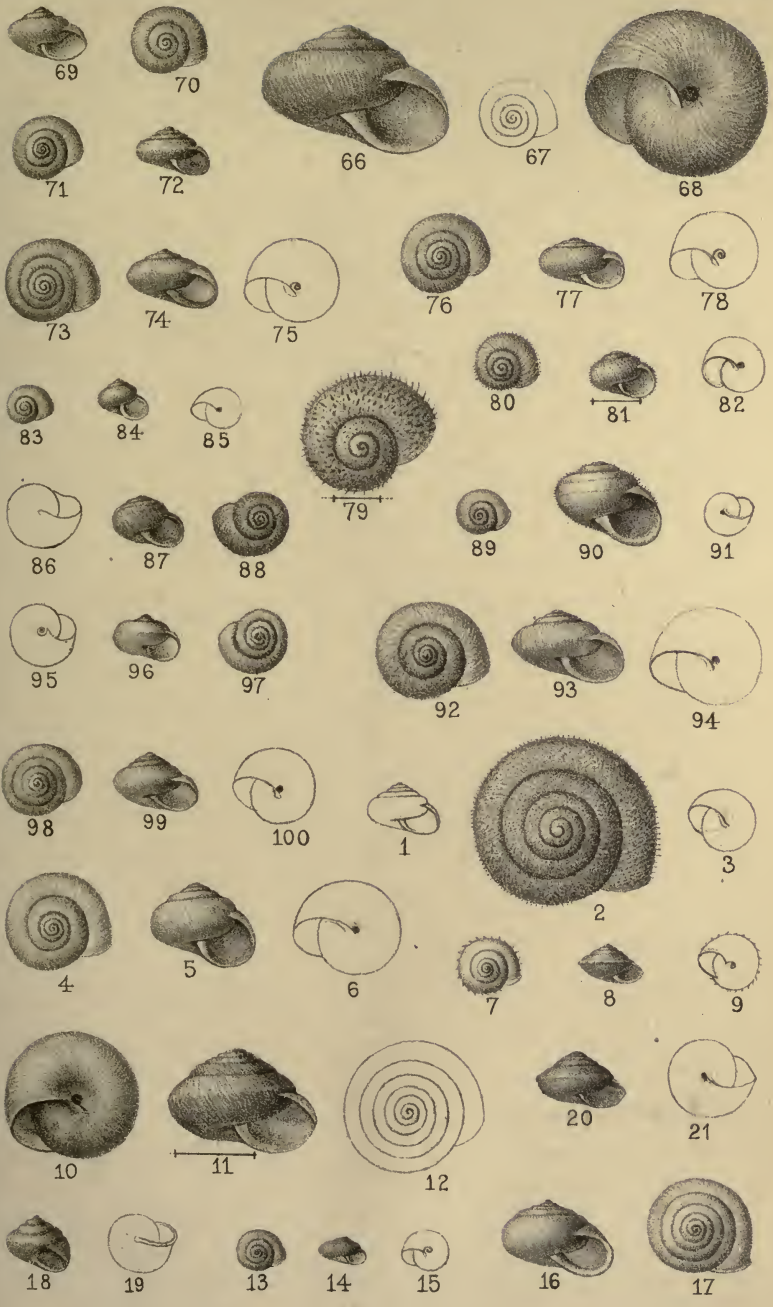
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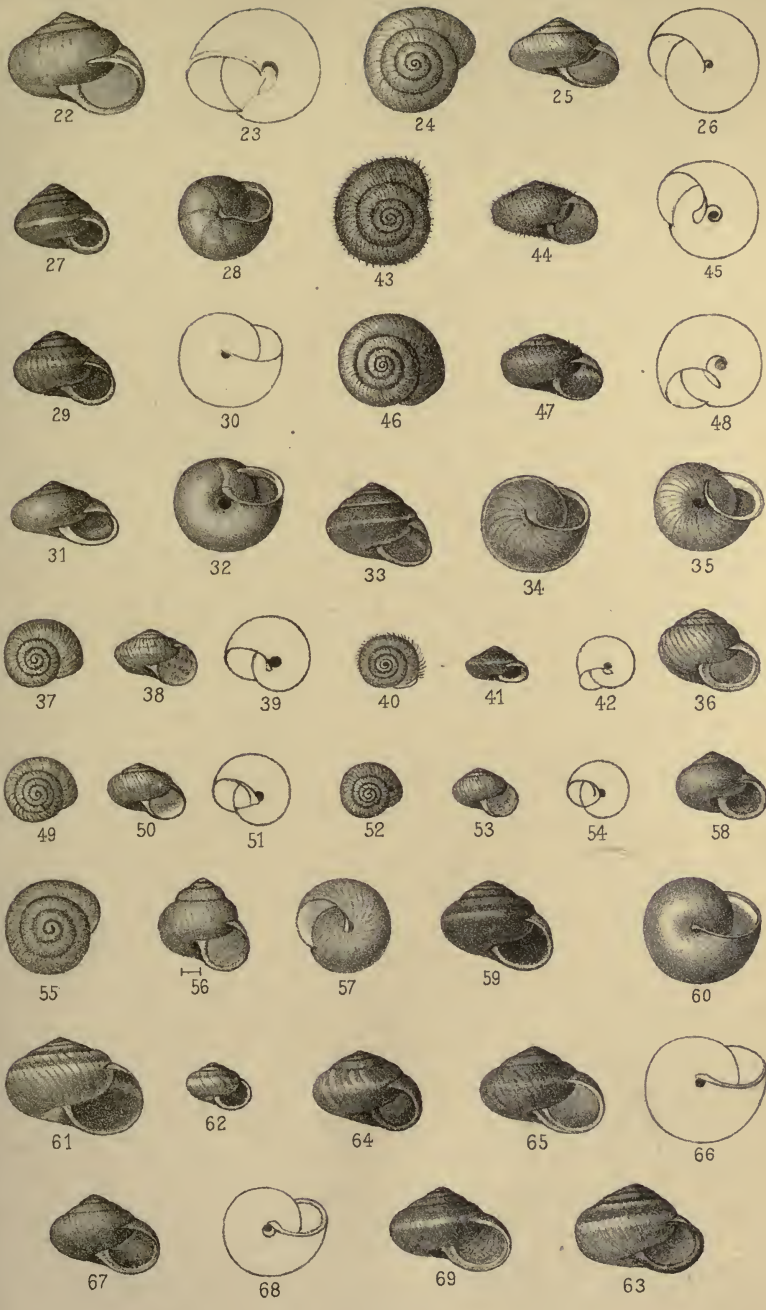
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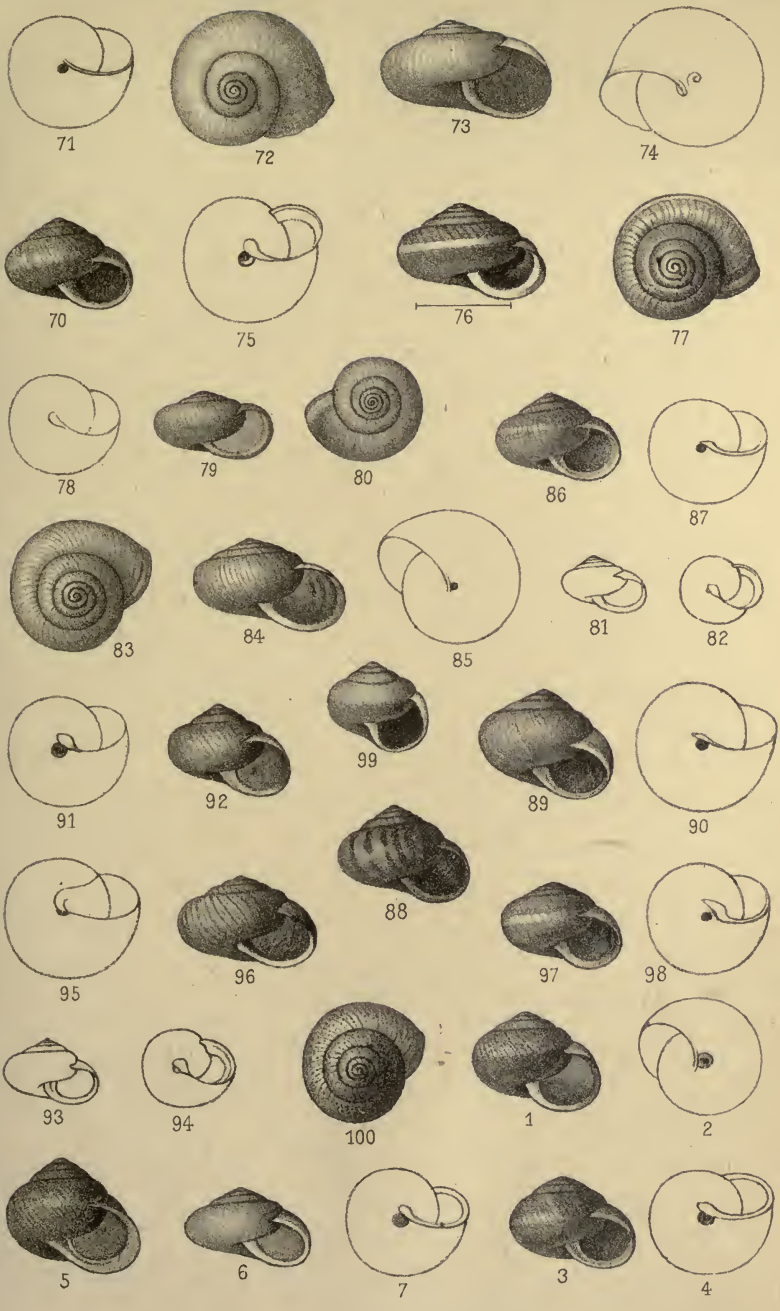
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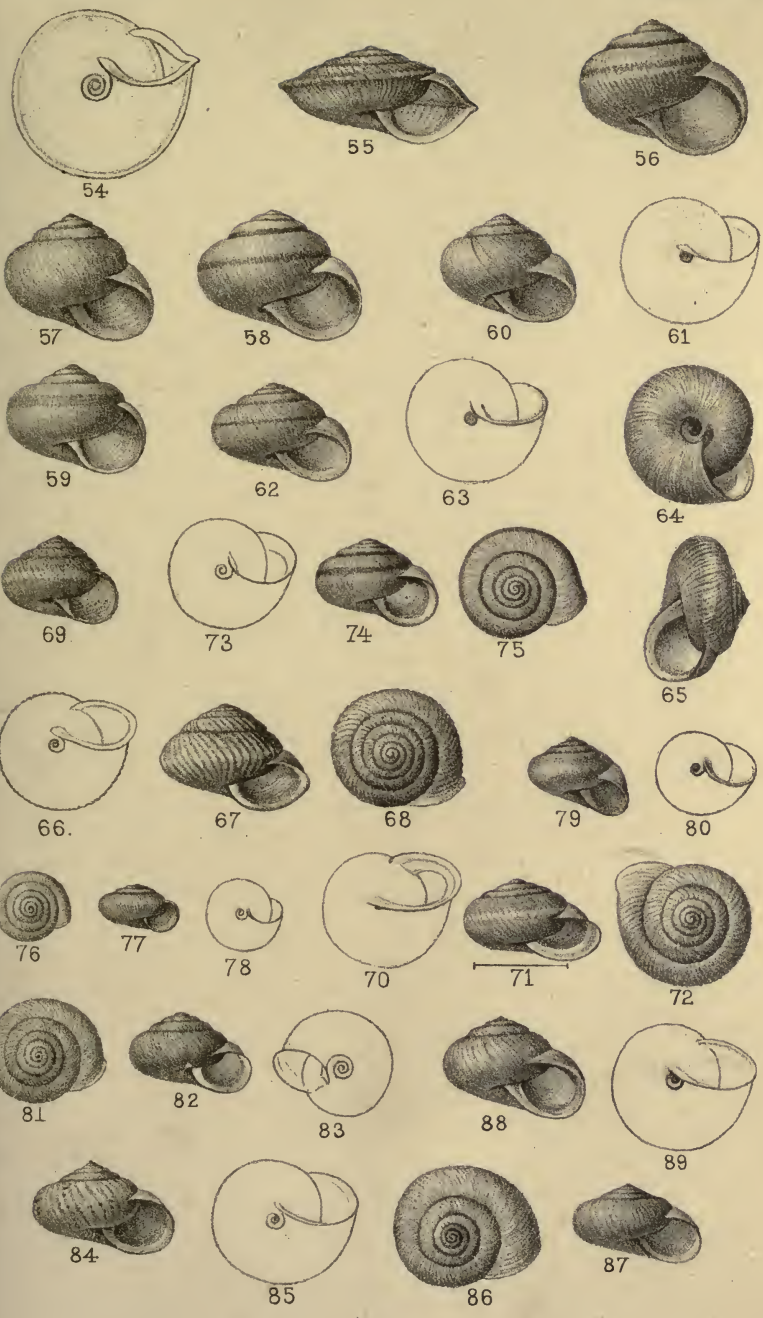
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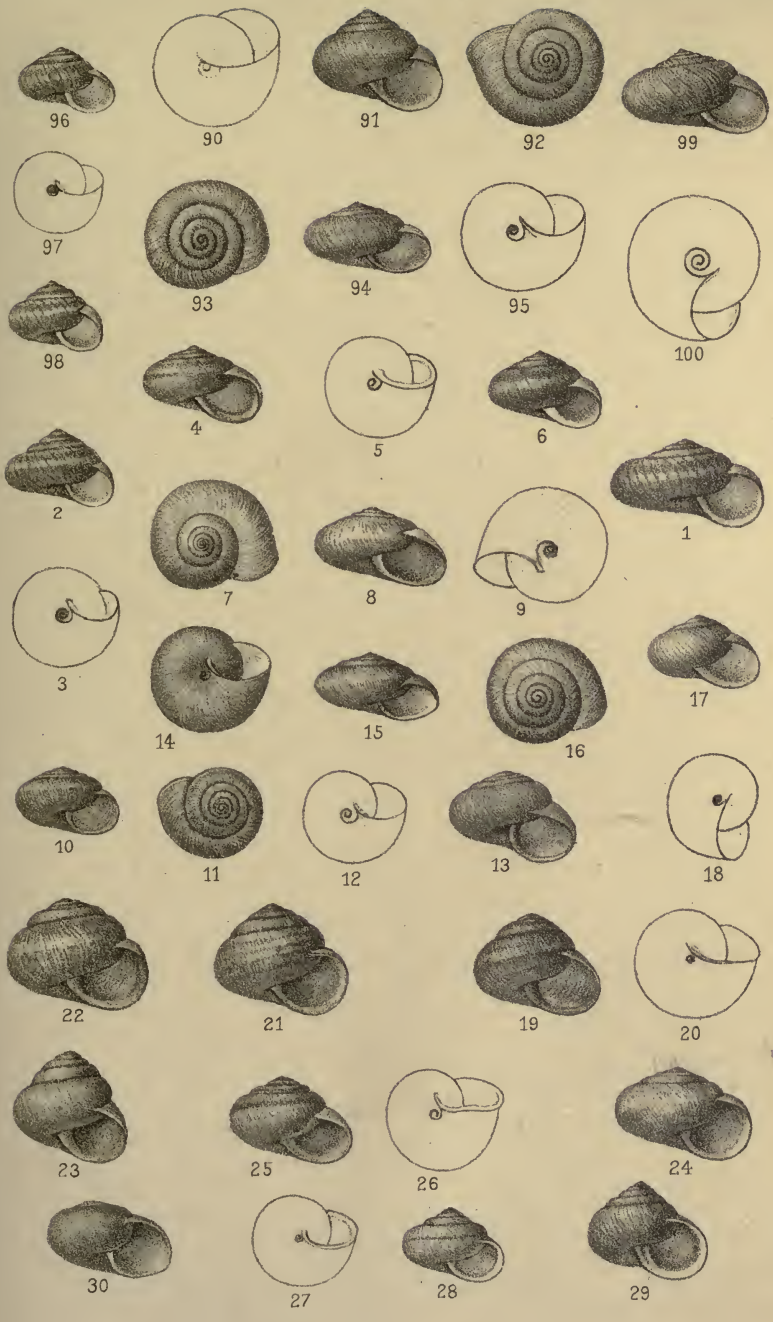
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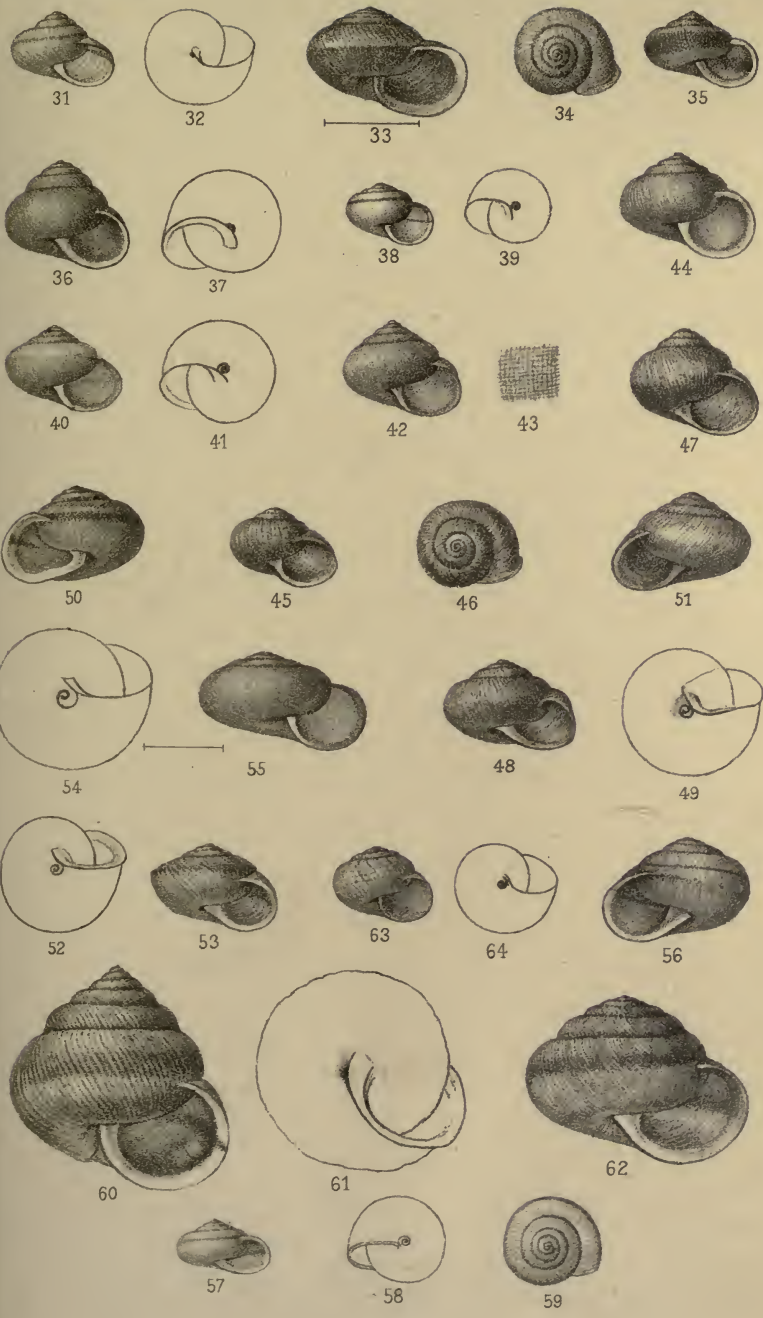
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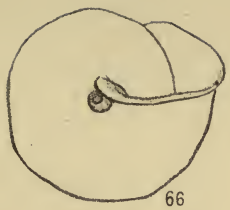
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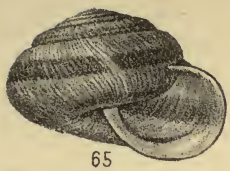
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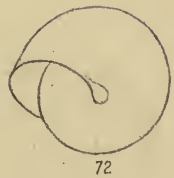
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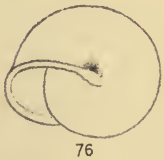
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H. VILLOSA, Drap. Pl. 39, figs. 87–89; Pl. 38, figs. 51–53.

Moderately umbilicated, opaque, thin, hairy, yellowish corneous, striate; whorls 5½, convex, the last not deflected; peristome subpatulous, with a wide, thin, white callus within. Diam. 14 mill.

*France, Southern Germany, Northern Italy.*

*H. pilosa*, Alten is a synonym.

Var. PHOROCHÆTICA, Bourg. Figs, 51–53.

Smaller, thinner, more strongly costulate, with shorter hairs; the whorls less convex above, aperture proportionally larger, the lip-extremities more distant, lip not thickened within; umbilicus very narrow.

*Grande Chartreuse.*

H. ARPATSCHAIANA, Mousson. Pl. 39, figs. 90, 91.

Narrowly umbilicated, irregularly striate, very minutely granular, dark corneous; whorls over 5, a little convex, slowly increasing, the last scarcely descending in front, with an obsolete peripheral angle, more convex, smoother and lighter colored below; periphery scarcely expanded, white-lipped within. Diam. 14 mill.

*Arpatschai, Valley of the Araxes.*

The shell which Martens has described and figured as a variety of this species, under the name Var. *Sewanica*, is a synonym of *H. pisiformis*, Pfeiffer.

H. DUSSERTIANA, Bourg. Pl. 39, figs. 95–97.

Deeply perforate, convex above, compressed below, sparsely hispid, fragile, pellucid, striate-costulate, spire convex, apex minute, shining, obtuse, smooth; whorls 5, convex, slowly increasing, with well-impressed suture, last whorl obscurely sub-angulated, not descending in front; peristome simple, acute, the margins joined by a callus. Diam. 7·25 mill.

*Algiers.*

H. ALSIA, Bourg. Pl. 39, figs. 98–100.

Narrowly umbilicated, rather plane above, sub-translucent, not shining below; light yellowish corneous, strongly striulate, a little malleate, with long whitish hairs, which are very caducous; whorls 6, with deep suture, the last a little flattened above, convex below; peristome simple, acute, slightly labiate within. Diam. 12 mill.

*Algiers.*

H. SORDULENTA, Morelet. Pl. 39, figs. 1, 2.

Moderately umbilicated, somewhat solid, a little turgid below, dull soiled corneous, with short hairs; whorls 5, convex, with deep

suture; the last whorl dilated in front; aperture circular, the lip acute, margins converging. Diam. 7 mill.

*Algiers, Tunis.*

H. GRANULATA, Alder. Pl. 39, figs. 3, 4, 5, 6.

Perforate, light corneous or pale yellowish, often whitish below, sub-hyaline, thin, closely hairy, or granular when the hairs have fallen; whorls 5–6, convex, rapidly increasing, the last rounded; peristome acute, thinly white-lipped within, columellar lip shortly reflected, partly covering the perforation. Diam. 7–8 mill.

*Northern and Middle Europe.*

*H. globularis*, Jeffreys, and *H. sericea*, Rossm. (ex parte) are synonyms.

Var. RUBIGINOSA, Schmidt. Figs. 5, 6.

Umbilicus minute, deep, color corneous-brown or reddish-yellow, with a white band, distantly, minutely pilose. Diam. 5–5·5 mill.

*H. badiella*, Ziegl., is a synonym.

Var. EPIROTICA, Mouss.

Perforate, rosaceous or light yellowish, pellucid, thin, epidermis fugacious, not pilose, with minute punctations.

*Greece.*

H. SERICEA, Drap. Pl. 39, figs. 7, 8.

Depressed globose, a little shining, reddish brown, pilose, or showing a few hairs, or nearly smooth; whorls 5–5½, convex, rapidly increasing, the last rounded, with a light peripheral band; umbilicus narrow, partly covered by the reflected columellar lip.

Diam. 6–7 mill.

*Northern and Central Europe, Russia, Caucasus.*

*H. piligera*, Ziegl., is a synonym. Milachevich has indicated a Var. *Gerstfeltiana.*

Var. EXPANSA, Clessin.

A little shining, white, under the thin yellowish corneous, pilose epidermis, whorls 5, the last without band, dilated, suture deep; peristome acute, not lipped within. Diam. 7 mill.

*Bavaria.*

Var. CORNEOLA, Clessin.

Globose, thin, scarcely diaphanous, yellowish or brownish-corneous, epidermis shortly hairy; whorls 5–5½, slowly increasing, the periphery rounded, suture deep. Diam. 5·5–6·5 mill.

*Bavarian and Swiss Alps.*

Var. DUBIA, Clessin.

Light corneous or brownish, last whorl less dilated than in the type, with wide umbilicus. Diam. 8 mill.

*Near Innsbruck, Tyrol.*

H. SEGUSINA, Lessona. Pl. 39, fig. 72.

Corneous, transparent, distinctly sub-carinate and fasciate; whorls 5½, rapidly increasing; lip a little reflected close to the very small umbilicus. Diam. 8 mill.

*Piedmont.*

H. DIECKMANNI, Mousson. Pl. 63, fig. 70.

Umbilicated, thinly striate, not hairy, pellucid, orange brown; whorls 5, moderately increasing, the last a little descending, base convex, less striated; lip acute, slightly reflected, a little thickened within, the basal portion obliquely descending, white, subdentiformly thickened. Diam. 10 mill.

*Valley of the Amour River.*

H. PARLATORIS, Bivona. Pl. 40, figs. 39, 40.

Moderately umbilicated, corneous, hairy; whorls 4, flattened above, spire babylonic, last whorl not descending in front, base more convex; peristome simple, acute, margins approximating. Diam. 9 mill.

*Sicily.*

H. MARTORELLI, Bourg. Pl, 40, figs. 41–43.

Narrowly umbilicated, dark corneous, somewhat pellucid, shortly pilose, apex obtuse, somewhat paler; whorls 4½–5, obtusely sub-angular, a little compressed above, with impressed suture, slightly descending in front, well-rounded below; periphery very slightly labiate within, its extremities connected by a thin callus. Diam. 6 mill.

*Near Barcelona, Spain.*

H. CHNOODIA, Bourg. Pl. 40, figs. 53–55.

Widely umbilicated, slightly diaphanous, not shining, corneous, lighter below, striulate, with inconspicuous minute hairs; whorls 5, with impressed suture, the last large, rounded, scarcely descending in front; peristome acute, margins converging, connected by a very thin parietal callus. Diam. 7. mill.

*Algiers, Tunis.*

H. LASIA, Bourg. Pl. 40, figs. 47–49.

Moderately umbilicated, depressed above, turgidly convex below, a little diaphanous, not shining, hairy and striate, dark corne-

ous; whorls 5, a little convex above but flattened, last whorl large, scarcely descending in front, periphery obtusely angulated, base convex; peristome simple, acute, extremities approaching, connected by a very thin callus. Diam. 7 mill.

*Algiers, Tunis.*

H. Malaspinæ, Bourg. Pl. 40, figs. 59, 60.

Perforate, subpellucid, somewhat hispid, rugose, chestnut color, with faint whitish strigations; whorls 5, convex, with deep suture, last whorl a little angulate on the periphery, slightly descending in front; peristome acute, margins approximating. Diam. 6 mill.

*Tunis.*

H. Tenietensis, Bourg. Pl. 40, figs. 56–58.

Narrowly umbilicated, thin, pellucid, strongly striated, shortly pilose, uniform corneous or obscurely flamed, and zonulate below, apex lighter; whorls 5, slightly convex, with impressed suture, the last not descending; peristome simple, acute. Diam. 7 mill.

*Algiers.*

H. lanuginosa. Boissy. Pl. 40, figs. 50, 51.

Perforate, yellowish corneous, hispid, opaque; whorls 5½, a little flattened; peristome subpatulous, acute, slightly labiate within. Diam. 14 mill.

*Majorca; Algiers.*

*H. flava*, Terver, and *H. roseotincta*, Forbes, are synonyms.

H. Corsica, Shuttl. Pl. 40, fig. 61; Pl. 41, figs. 92–94.

Narrowly perforate, striate, slightly subhispid, obscurely angulated, thin, subpellucid, brownish or yellowish corneous, not shining; whorls 5, regularly enlarging; peristome acute, simple, columellar lip half covering the perforation. Diam. 15 mill.

*Corsica, Sardinia.*

H. revelata, Fer. Pl. 41, figs. 80–82, 89–91.

Perforate, depressed globose, thin, diaphanous, shining, greenish corneous, slightly striate and subcorrugated, with short, sparse, rather rigid hairs; whorls 4, convex, rapidly enlarging, the last inflated. Diam. 7 mill.

*France, Guernsey, Jersey.*

Var. occidentalis, Recluz. Figs. 89–91.

Rimately perforate, greenish yellow, sometimes with two brown zones, rugulosely striate, hispid; whorls 4½–5, convex, the last

dilated, with convex base, suture well impressed; aperture white; peristome acute, slightly expanded, white-lipped within.

Diam. 9 mill.

*Portugal.*

*H. Ponentina*, Morelet and *H. Lisbonensis*, Pfr., are synonyms; to which may possibly be added *H. martigena*, Fer.

H. Salmurina, Servain. Pl. 41, figs. 83–85.

Narrowly perforate, turbinate, striate; whorls 4, rapidly enlarging; with well-impressed suture; peristome simple, the columellar portion reflected. Diam. 6 mill.

*Southern France, Spain.*

Confounded by Michaud with *H. revelata*, but has a higher spire, etc.

H. ptylota, Bourg. Pl. 41, fig. 79.

Scarcely perforate, pellucid, fragile, greenish brown, irregularly striate, with short whitish hairs; whorls 4, a little convex, rapidly enlarging, the last scarcely descending at the aperture, peristome acute, simple. Diam. 5·5 mill.

*Brittany.*

H. acleochroa, Bourg. Pl. 41, figs. 76–78.

Perforate, pellucid, shining, sharply striulate, light corneous, with an obscure lighter peripheral zone; whorls 6, moderately enlarging, the last large, suddenly descending at the aperture; peristome slightly white-lipped within, extremities approximating.

Diam. 11 mill.

*Algiers.*

H. Moquiniana, Raym, Pl. 41, figs. 71, 72; 98–100.

Perforate, thin, slightly granulate (scars of hairs?), pellucid, reddish corneous; whorls 5½, slightly convex, the last with subangulate periphery, scarcely descending anteriorly; peristome simple, acute, slightly rosy-lipped within. Diam. 9·5–12·5 mill.

*Near Constantine, Algiers.*

Var. Fradiniana, Bourg. Figs. 98–100.

Larger, more elevated, whorls more slowly enlarging, perforation wider, last whorl distinctly descending in front.

H. perlevis, Shuttlew. Pl. 41, figs. 4–6.

Very narrowly perforate, globose, striulate, with scarcely visible, sparse, very evanescent minute hairs, very thin, pellucid, light

corneous, a little shining; whorls 6, convex, the last inflated; peristome acute, with a very thin internal lip, columellar margin partly covering the perforation. Diam. 14 mill.

*Corsica and Sardinia.*

H. PSATUROCHŒTA, Bourg. Pl. 41, figs. 2, 3.

Scarcely perforate, pellucid, fragile, light yellowish, darker at the aperture, with caducous, dense, short hairs, thinly striulate, the adult a little malleate; whorls 6, moderately enlarging, peristome simple, acute, nearly covering the perforation.

Diam. 9 mill.

*Brittany.*

*Oriental Species.*

H. HUNGERFORDIANA, Nevill. Pl: 40, figs. 27, 28.

Moderately umbilicated, very thin and fragile, light yellowish corneous, with deciduous very short hairs; whorls 5, slightly convex, with impressed suture, the last large, inflated, shortly descending in front; aperture rounded lunar, peristome thin, slightly expanded, sinuous below. Diam. 18 mill.

*Formosa.*

H. SUBMISSA, Deshayes. Pl. 39, figs. 9, 10.

Moderately umbilicated, thin, fragile, subpellucid, yellowish corneous, spire subplane, rugosely striate, granular, shortly pilose; whorls 6, a little convex, the last expanding in front, periphery obtusely angulated; aperture subcircular, oblique, whitish, submargined within. Diam. 15 mill.

*Thibet.*

H. SUBECHINATA, Desh. Pl. 39, figs, 11, 12.

Widely umbilicated, depressed, subdiscoidal, corneous, epidermis stiffly hirsute, spire obtuse, conoidal; whorls 6, narrow, slowly increasing, convex, suture deep, periphery rounded; aperture small, obliquely circular, whitish, peristome thin, a little expanded.

Diam. 7 mill.

*Moupin, Thibet.*

H. TCHEFOUENSIS, Crosse and Debeaux. Pl. 40, figs. 13, 14.

Widely, perspectively umbilicated, rather thin, pellucid, brownish corneous, very shortly hispid; whorls $4\frac{1}{2}$, a little convex, the last descending in front, periphery rounded; peristome patulous, subreflected, yellowish corneous, margins approaching.

Diam. 8 mill.

*Tchefou, Northern China.*

Is *H. Munieriana*, Cr. et Deb. (not Deshayes.)

H. PUBERULA, Heude. Pl. 40, figs. 18–20.

Moderately umbilicated, thin, greenish brown, slightly hairy; whorls 5, the last inflated; peristome expanded, simple, extremities joined by a callous. Diam. 18 mill.

*Tchenkeou, China.*

H. HORRIPILOSELLA, Heude. Pl. 40, figs. 21–23.

Rather widely umbilicated, brownish, with scattered hairs; whorls 4, narrow, very slowly increasing; peristome acute, reddish, a little callous within. Diam. 7 mill.

*Tchenkeou, China.*

H. NAUTARUM, Heude. Pl. 52, figs. 2–4.

Narrowly umbilicated, thin, plicate-striate, with rather long hairs, brownish red; whorls 5½, convex, suture deep, slowly increasing, the last convex, thick, angulated, descending in front; peristome thin, dilated, a little reflected. Diam. 10 mill.

*Houang tcheou-fou, China.*

H. REBELLIS, Heude. Pl. 40, figs. 24–26.

Widely umbilicated, plicately striate, fuscous; whorls 4½, narrow, very slowly increasing, the last suddenly descending anteriorly; aperture subcircular, peristome simple, acute, extremities nearly joining. Diam. 10 mill.

*Tchenkeou, China.*

Related to *H. submissa*, Desh. but with wider umbilicus, narrower whorls, less dilated aperture. Appears devoid of hairs.

H. LEUCOCHEILUS, Cox. Pl. 40, figs. 15–17.

Rather widely umbilicated, stout, pellucid, a little shining, obsoletely radiately striate, and occasionally minutely granulated, light yellowish brown or light chestnut colored, with a chestnut band above the carina, another at the suture, and the umbilicus surrounded by a wide chestnut zone; whorls 5, planulate, the last obtusely carinated; lip expanded, reflected, white, right margin simple, columella slightly bisinuated. Diam. 16 mill.

*Clarence River, Australia.*

Described as *H. Mariæ*, Cox, preoccupied.

Var. *β*. Reddish chestnut, without bands.

H. PORTERI, Cox.

Profoundly umbilicated, a little tumid, thin, reddish, obsoletely plicate-striate, very minutely granulated, closely, very shortly pilose;

whorls 4½, a little convex, the last tumid, constricted at the aperture; peristome thin, expanded, subreflected, white within, half covering the umbilicus. Diam. 17 mill.

*Clarence and Richmond Rivers, Australia.*

H. MUTICA, Morelet. Pl. 40, figs. 29–31.

Narrowly umbilicated, thin, brownish, scarcely striate; whorls nearly 5, slightly convex, the last narrow, suture deep; peristome thin, acute, extremities distant. Diam. 6 mill.

*Ins. Mayotte.*

H. RADIOLATA, Morelet. Pl. 40, figs. 33, 34.

Narrowly umbilicated, thin, lightly costulate-striate, a little shining, fulvous horny; whorls 4½, narrow, with subchanneled suture, the last whorl rounded; peristome acute, simple, extremities connected by a thin parietal callus. Diam. 3 mill.

*Ins. Mayotte.*

H. SMIRUENSIS, Mousson. Pl. 40, figs. 44–46.

Narrowly umbilicated, thin, diaphanous, very minutely, irregularly pilose; light greyish; whorls 4½, rather slowly increasing, more convex below, periphery obtusely angulated; peristome acute, margins remote. Diam. 6 mill.

*Java.*

*** *American Species.*

H. PUBESCENS, Pfr. Pl. 40, fig. 32.

Very narrowly umbilicated, thin, smoothly, shortly pilose, diaphanous, yellowish; whorls 5, a little convex, the last rounded, higher than wide, not descending in front; lip simple, the columellar margin shortly reflected above. Diam. 11 mill.

*Haiti.*

H. SUMICHRASTI, Crosse and Fischer. Pl. 40, figs. 37, 38.

Widely umbilicated, rather thin, subtranslucent, with numerous subdistant, longitudinal scales and short setæ, suture deep; whorls 4, slowly increasing, the last descending in front, with an obtuse angle above, base a little flattened; aperture brownish-white, peristome reflected, margins converging, joined by a strong parietal callus. Diam. 16 mill.

*Huallaga, Mexico.*

*Unfigured and doubtful species of Trichia.*

H. VENDEANA, Letourn. *Vendée, France.*
H. GOOSSENSI, Mabille. *France.*

H. TUMESCENS, Westerl. *Sweden.*
H. AXONANA, H. SAPOROSA, H. SUBMONTANA, H. MATRONICA, H. BELLOVACINA, all of Mabille. *France.*
H. ATAXIACA, Fagot. *France.*
H. VENDOPERANENSIS, H. VOCONTIANA, H. BOURNIANA, H. ELAVERANA, H. STENELIGMA, H. CHONOMPHALA, H. MICROGYRA, H. CULARENSIS, H. HISPIDELLA, H. VENETORUM, H. VILLULA, all of Bourguignat. *France.*
H. DUBISIANA, H. URBANA, Coutagne. *France.*
H. HYPSELLINA, Pons d'Hauterive. *France.*
H. SCIRAIA, H. APORATA, H. MABARA, Bourg. *Croatia, Carniola, etc.*
H. UMBROSELLA, Jouss. *Salzburg, Austria..*
H. BOFILLIANA, Servain. *Catalonia.*
H. ERJAVECI, Brusina. *Croatia.*
H. SAVINELLA, Servain. *Zenica.*
H. DENSECOSTULATA, Retowski. *Crimea.*
H. SUBBADIELLA, Bourg. *France.*
H. LATINIACENSIS, Bourg. *France.*
H. COTTIANA, H. SALASSIA, H. PEGORARII, Pollonera. *Piedmont.*
H. LUBOMIRSKII, Slosarski. *So. Russia.*
H. TUMESCENS, Westerl. *Sweden.*
H. BIELZI, Schmidt. *Transylvania.*
H. BIELZI, var. BOSNENSIS, Möll. *Bosnia.*
H. TRANSSYLVANICA, Bielz. *Transylvania.*
H. KUSMICI, Clessin. *Cattaro.*
H. GLISCHRA, H. PERSORDIDA, H. RYPA, Letourn, et Bourg. *Tunis.*
H. MENDICARIA, Pfr. *Tunis.*
H. ZARITOSA, Berthier. *Tunis.*
H. POLYTRICHIA, Ancey. *Tlemcen.*
H. LONGIPILA, Mousson. *Morocco.*
H. APHÆA, and H. BERBRUGGERIANA, Letourn. *Algiers.*
H. STUXBERGI, Westerl. (*H. sericea*, Schrenck), *Siberia.*
H. SEMIHISPIDA, Ancey. *Inkiapo, Central China.*
H. SZECHENYII, Ancey. *China.*
H. CONCINNA, A. Ad. (preocc. by Jeffreys). *Japan.*
H. PROBA, A. Ad. *Japan.*
H. ADRIANA, Hutton. *New Zealand.*
H. SALVINI, Tristram. *Vera Paz, Guatemala.*

Subsection IV. Zenobia, Gray. 1821.

H. glabella, Drap. Pl. 40, figs. 62–68, 73–75.

Narrowly umbilicated, glabrous, shining, corneous; whorls 5–5½, a little flattened above, the last obsoletely angulated, with a light peripheral line, subdeflected in front; peristome simple, acute, sublabiate within. Diam. 9·5 mill.

*France, Germany.*

Var. Telonensis, Mittre. Figs. 63–65; 66–68; 73–75.

Thin, corneous, pellucid, very slightly striate; spire more depressed than in the type, with wider umbilicus. Diam. 8 mill.

*Southern France.*

*H. lavandulæ*, Bourg. (figs. 66–68), and *H. Moutonii*, Mittre (Figs. 73–75) are identical, Nevill has described a Var. *crassilabris*. The unfigured *H. diœga*, *H. gelida*, *H. concreta*, *H. Druentina* and *H. crinoida*, of Bourg. have all been referred to this variety.

H. fusca, Montagu. Pl. 41 figs. 69, 70.

Imperforate, very thin, pellucid,, corneous, shining, rugosely striate above, smooth below; whorls 5, a little convex, the last obsoletely angulated; peristome simple, acute, columella very short, subvertical. Diam. 9 mill.

*England, Ireland, France.*

*H. subrufescens*, Mill. is a synonym.

H. cinctella, Drap. Pl. 41, figs. 20, 21.

Subperforate, shining, very lightly striate, thin, yellowish with an opaque white peripheral line; whorls 5½–6, somewhat flattened above, the last angulate; peristome simple, acute, basal margin a little reflected. Diam. 12 mill.

*Central Europe.*

*H. Ranzani*, Orsini, has been referred to this species.

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H. pallidula, Pfeiffer. Pl. 41, figs. 95–97.

Narrowly umbilicated, thin, pellucid, closely striate, light corneous, whorls 5½, a little convex, the last with obscurely angular periphery; peristome simple, acute, sublabiate within, Diam. 10 mill.

*Chili.*

H. pruinosa, Pfeiffer. Pl. 41, figs. 86–88.

Perforate, thin; obliquely closely filose-striate, diaphanous, rufous,

glaucous, suture deep; whorls 4½, convex, the last rounded, scarcely descending; peristome thin, its extremities approaching.

Diam. 11 mill.

*Haiti.*

*Unfigured species of Zenobia.*

H. ASTENIA, H. ABEBARICA, H. DELACOURI, H. EUCLASTOLENA, H. GAUDEFFROYI, H. ISCHNIA, all of Mabille. *Corsica.*

H. LANGSDORFFI, Milliere. *Maritime Alps, France.*

H. COTINOPHILA, Bourg. *Near Toulon, France.*

H. MONTIVAGA, Westerl. *Portugal.*

H. SAXIVAGA, Maltzan. *Portugal.*

H. DESPECTA, A. Ad? *Japan.*

Subsection V. MONACHA, Hartmann, 1840.

H. CILIATA, Venetz. Pl. 41 figs. 7–9.

Perforate, corneous, opaque, rugosely striate; whorls 4½–5, flattened, the last with a carinated and ciliated periphery; peristome a little reflected, with a slight brownish lip within.

Diam. 8·5 mill.

*France, Switzerland, Tyrol.*

It is *H. hirsuta*, Jan, *H. biformis*, Beck, *H. folliculata*, Risso.

Var. *β*. Major: Diam. 10·5 mill.

H. REINÆ, Benoit. Pl. 41, figs. 13–15.

Moderately umbilicated, striate, subdiaphanous, corneous, sometimes with a few hairs, spire a little exserted; whorls 4, planulate above, the last with subcarinated periphery and convex base; peristome simple, acute, margins approaching.

Diam. 6·5 mill.

*Sicily.*

H. INCARNATA, Müller. Pl. 41, figs. 16, 17.

Perforate, thin, opaque, reddish brown, with a bloom, and a pellucid band, very minutely granulated, whorls 6, a little convex, the last deflected in front, periphery obsoletely angulated; peristome acute, subreflected, rufous exteriorly, with a reddish interior lip not attaining the margin. Diam. 16 mill.

*France, Germany, Switzerland,* etc.

*H. sylvestris*, Hartm. and *H. rubra*, Chier. are synonyms, and *H. sericea*, Müll. is probably a juvenile.

Var. TECTA, Ziegler.

Smaller, umbilicus nearly covered.

Var. WELEBITANA, Stentz.

More solid, opaque, basal margin of aperture straighter.

Var. MONODON, Villa.

Columellar margin unidentate, more globose and turrited than the type.

*Switzerland.*

*H. armata*, Stabile is identical.

H. JURINIANA, Bourg. Pl. 41, figs. 10–12.

Narrowly perforate, subpellucid, dull, corneous or fulvous corneous, subcostulate above, striulate below; whorls 6½, the last with subcarinate periphery, which is sometimes lighter colored or whitish; peristome simple, acute, with white lip within. Diam. 9 mill.

*Aix-les Bains.*

H. VICINA, Rossmässler. Pl. 42, figs. 27, 28.

Subperforate, yellowish corneous, with a pellucid peripheral zone, slightly granulate; whorls 6, scarcely convex above, the last shortly descending in front, base convex, impressed in the middle; peristome patulous, white-lipped within. Diam. 12·5 mill.

*Carpathian Mountains.*

It is *H. Carpatica*, Friv., and *H. tecta*, A. Schmidt.

H. HIBERNA, Benoit. Pl. 41, figs. 18, 19.

Perforation covered, thin subpellucid, yellowish corneous, very shortly pilose, and slightly striate; whorls 5, subplanulate above, periphery subangulated, body whorl scarcely descending in front, base convex; peristome subpatulous, white-lipped within.

Diam. 9 mill.

*Sicily.*

Var. VULCANICA, Platanica.

More yellowish, periphery rounded, peristome rosy, marked with brown exteriorly.

H. CONSONA, Ziegler. Pl. 42, figs. 29, 30.

Perforation nearly covered, pellucid, slightly striate, a little shining, yellowish corneous, with a peripheral pellucid zone; whorls 5½, a little convex, the last scarcely descending at the aperture; peristome acute, white-lipped within, margins remote. Diam. 14·5 mill.

*Sicily.*

*H. ursula*, Fer. is a probable synonym.

H. Bidinensis, Cafici. Pl. 42, figs. 22, 23.

Differs from the last species in being larger, conoidally globose, with more convex whorls, and the pellucid zone obsolete or wanting, last whorl descending at the aperture, peristome strongly lipped within.

*Sicily.*

H. Faidherbiana, Bourg. Pl. 42, figs. 24–26.

Narrowly perforate, thin, subpellucid, reddish corneous above, a lighter shade below, rugulosely or squamosely striate; whorls 6, scarcely convex above, with impressed suture, the last with angulated periphery, and slightly descending in front; peristome sharp.

Diam. 15 mill.

*Algiers.*

H. limbata, Drap. Pl. 42, figs. 33, 34.

Perforation nearly covered, very lightly striate, pellucid, yellowish corneous, the angulated periphery with an opaque white band; whorls 6, the last not descending in front; peristome slightly expanded, slightly labiate within. Diam. 15 mill.

*France.*

H. Redtenbacheri, Zelebor. Pl. 42, figs. 35, 36.

Narrowly umbilicated, solid, closely striate, shining, light corneous; whorls nearly 6, rounded, the last deflected in front; peristome strongly white-lipped within, margins converging, slightly expanding, reflected at the base, the columellar lip expanded.

Diam. 14 mill.

*Ins. Syra.*

H. Nicosiana, Mousson. Pl. 42, figs. 31, 32.

Umbilicated, thin, opaque, brownish, light-banded, striate, and closely granulate; whorls 5½, periphery subangulated, body whorl deflected in front; peristome simple, a little expanded, whitish, thin-lipped within, extremities approaching, columellar margin widely reflected. Diam. 12 mill.

*Ins. Cyprus.*

Mousson has described a Var. pallida, subdepressed, pallid, minutely subgranulate, fragile, subpellucid.

H. Beccarii, Jickeli. Pl. 42, figs. 40–42.

Perforate, brownish corneous, opaque, ciliate; whorls 5, with deep suture, periphery angulated, with longer hairs, descending at

the aperture, base convex; peristome obtuse, dilated, subreflected, callous-lipped within. Diam. 7·8 mill.

*Bogos, Abyssina.*

Is *H. ciliata*, Morelet, not Venetz.

H. PILIFERA, Martens. Pl. 42, figs. 43–45.

Umbilicus moderate, shell plicate-striate, with a few short hairs, chestnut colored; whorls 5, rather flattened above, at first with angulated periphery, the last with the angle vanishing and descending towards the aperture; peristome simple, dilated on the columella. Diam. 14·5 mill.

*Abyssinia.*

H. COMBESIANA, Bourg. Pl. 42, figs. 46–48.

Striæ strong, plicate, with long hairs between them, arising from tubercular bases; pale brown, with a yellowish line on the subangular periphery.

*Abyssinia.*

This is *H. pilifera* of Jickeli, but not of Martens, nor of Morelet.

H. HERBINI, Bourg. Pl. 42, figs. 49–51.

Narrowly perforate, thin, subpellucid, not shining, plicate-striate, with close short hairs in the intervals, chestnut colored; whorls 5–6, convex, slowly increasing, the last rounded; peristome acute, margins remote, joined by an inconspicuous callus. Diam. 10 mill.

*Abyssinia.*

H. GALINIERIANA, Bourg. Pl. 42, figs. 52–54.

Very narrowly perforate, rather thin, subpellucid, slightly shining, chestnut colored, plicate, with hairs between the plicæ; whorls 5, the last rounded; peristome acute, margins joined by a callus. Diam. 8 mill.

*Abyssinia.*

H. FERRETIANA, Bourg. Pl. 42, figs. 37–39.

Narrowly perforate, thin, diaphanous, shining, elegantly obliquely striulate, corneous, with a whitish or translucent zone, sometimes two or three zones, which are often interrupted; whorls 5, periphery angulated, more convex below; peristome simple, acute. Diam. 11 mill.

*Abyssinia.*

***

H. VILIS, Pfeiffer. Pl. 42, fig. 58.

Umbilicated, rather thin, granularly striate, corneous; whorls 5, scarcely convex above, rapidly enlarging, the last deflected in

front, periphery obsoletely subangulated, base convex; peristome strongly labiate within. Diam. 11 mill.

*Hab. unknown.*

H. PULVISCULUM, Issel. Pl. 42, figs. 55–57.

Scarcely perforate, fragile, translucent, obliquely striulate, yellowish corneous; whorls 4, convex, with deep suture, the last slightly descending at the aperture; peristome acute.

Diam. 1·3 mill.

*Borneo.*

More like a *Conulus* than a *Monacha* in form and size.

*Unfigured Species of Monacha.*

H. SILANICA, H. VEPRIUM, H. GUEVARRIANA, H. ODECA, H. HYLONOMIA, H. TASSYI, H. SUBLIMBATA, Bourg. *France.*
H. DELOMPHALA, Ancey. *Cartagena.*
H. CRISPULATA, Mousson. *Jerusalem.*
H. CRASPEDOCHEILA, H. COLLINSONI, H. COMMODA, A. Ad. *Japan.*

Subsection VI, CARTHUSIANA, Kobelt, 1871.

H. OLIVIERI, Fer. Pl. 42, figs. 59, 60–64.

Almost imperforate, thin, pellucid, whitish, with a light brown band; whorls 5–6, slightly convex; peristome acute, white-lipped within. Diam. 15 mill.

*Turkey, Corfu, Sicily, Dalmatia.*

*H. cincta*, Hartm., and *H. dilucida*, Zglr. are synonyms, and Paulucci has figured two forms, *major* (fig. 61) and *nana* (fig. 62.)

Var. PARUMCINCTA, Parr.

More depressed, corneous, with a white zone at the suture, and a narrow one on the periphery.

Var. OCELLATA, Parr. Fig. 63.

Spire corneous, last whorl white, with a peripheral corneous line, and pellucid scattered dots.

Var. ÆNENSIS, Benoit.

Smaller, diam. 12 mill.

Var. RUFESCENS, Platanica.

Brownish, with distinct white bands, peristome red-lipped within, brown-lined exteriorly.

Var. BICINCTA, Benoit. Fig. 64.

Thin, subpellucid, rugulosely striated, brownish corneous, with two milk-white bands. Diam. 15 mill.

*Sicily.*

*H. Rizzæ*, Aradas, is a synonym.

Var. CRIBRATA, Westerl.

Polished, bluish, with two light brownish bands, with radiating striæ at the suture and umbilicus.

*Athens.*

H. PIRAJNEA, Benoit. Pl. 42, figs. 65, 66.

Narrowly perforate, thin, shining, subpellucid, rugulosely striate, yellowish corneous or flesh color, spire exserted; whorls 6, rapidly enlarging, the last descending in front; peristome acute, white-lipped within. Diam 18 mill.

*Sicily.*

H. CANTIANA, Montagu. Pl. 42, figs. 67–69.

Narrowly umbilicated, thin, pellucid, striate, yellowish corneous; whorls 5½–6, slightly convex, rapidly enlarging, the last inflated, not descending; peristome acute, labiate within. Diam. 21 mill.

*Western and Central Europe.*

It is *H. carthusiana*, Drap, not Müll., *H. pallida*, Jeffreys, and perhaps *H. crepuscularis*, Gmel.

Var. SEMIRUFA, Colbeau.

Last whorl brownish.

Var. ANCONÆ, Issel.

With a white peripheral band, peristome pinkish or yellowish brown.

*Northern Italy, Elba, etc.*

Var. DIRPHICA, Blanc. Figs. 70–74.

Irregularly, somewhat malleately striate, shining, light yellowish brown, with peripheral and sutural white bands, and yellowish white variciform strigations, apex brown, peristome white-lipped.

*Greece.*

Var. RUBELLA, Risso.

Rugulosely malleate, subglobose, reddish anteriorly.

Var. CAMPANICA, Paulucci. Figs. 72–74.

Spire more depressed than in var. *rubella*, last whorl flattened above, more inflated below, umbilicus wider.

Var. MESSENICA, Blanc. *Kalamata, Greece.*

H. HAUSSKNECHTI, Böttger. Pl. 43, figs. 75–77.

Narrowly umbilicated, solid, yellowish corneous, white at the suture, rarely brownish, always with a broad white peripheral band; whorls 5½, slowly increasing, with impressed suture, the last subangulate, a little descending in front; aperture widely white-lipped within. Diam. 11·5–13 mill.

*Mt. Pindi, Thessaly; alt.* 6000 *feet.*

H. SARRIENSIS, Martorel and Pena. Pl. 43, figs. 78–80.

Scarcely umbilicated, smooth, striate, thin, shining; whorls 5½, moderately increasing, white, tinged with brown, the last with rounded periphery, scarcely descending at the aperture; lip margined with brown, with a white internal callus. Diam. 16 mill.

*Pyrenees.*

H. DIURNA, Bourg. Pl. 43, figs. 81, 82.

Narrowly perforate, finely striate, solid, subopaque, whitish with dark gray strigations; whorls 6–7, a little flattened above, the last not carinate, convex below; peristome a little expanded, reflected towards the umbilicus, strongly labiate within. Diam. 11 mill.

*Lyons, France.*

H. CARASCALOIDES, Bourg. Pl. 43, figs. 83–85.

Narrowly perforate, somewhat solid, lightly, irregularly malleately rugose, diaphanous, yellowish–or corneous-white; whorls 6½–7, a little convex, the last rounded, scarcely descending in front; peristome acute, white-lipped within. Diam. 18·5–20 mill.

*Gallipoli, Turkey.*

H. FREQUENS, Mousson. Pl. 43, figs. 86, 87.

Narrowly perforate, somewhat solid, striate, subpellucid, shining, dark corneous; whorls 6, the last scarcely descending in front; aperture light corneous, peristome white-lipped within.

Diam. 7 mill.

*Turkey.*

Mousson has described a var. *cornea*, darker colored, more convex, with 7 convex whorls.

H. CEMENELEA, Risso. Pl. 43, figs. 88–92.

Narrowly umbilicated, thinly, regularly striulate, thin, pellucid, white or yellowish white; whorls 6–7, with well-impressed suture; peristome acute, brownish, white lipped within.

*Southern France.*

Perhaps only a variety of *H. Cantiana*, with which it has usually been united. Another name for it is *H. Galloprovincialis*, Dupuy.

Var. Chersonesica, Kobelt. Figs. 89, 90.

Shell more solid, spire more elate, peristome white-lipped.

*Sebastopol, Crimea.*

H. Putoniana, Mabille. Pl. 43, figs. 93, 94.

Narrowly umbilicated, convex above, swollen below, indistinctly, finely striate, moderately solid, somewhat shining, subtransparent, pale reddish corneous; whorls 6–7, with well-marked suture; peristome with a thin interior white callus. Diam. 12 mill.

*Alluvion of the Rhone, So. France.*

H. simplicita, Parreyss. Pl. 43, figs. 95, 96.

Scarcely perforate; somewhat solid, striulate, lightly malleated, yellowish white; whorls 6, a little convex, the last a little deflected in front; peristome acute, strongly white-lipped within.

Diam. 18 mill.

*Apennines.*

H. Berytensis, Fer. Pl. 43, figs. 97, 98 99.

Narrowly umbilicated, thin, subpellucid, fulvous, very minutely granulated; whorls 5½, the last large, obsoletely angulated on the periphery, where it sometimes bears an obscure pale band; peristome simple, labiate within. Diam. 16 mill.

*Syria.*

Bourguignat enumerates varieties or forms *conica*, *leucozona*, and *subgranulata*.

Var. rachiodia, Bourg. Pl. 43, fig. 99.

More globose, greenish yellow, irregularly plicate and elegantly granularly decussated. Diam. 12 mill.

*Asia Minor.*

*H. granulata* Roth, (not Quoy), was the original name of this variety.

H. Fourousi, Bourg. Pl. 43, figs. 100–2.

Narrowly umbilicated, rather solid, slightly translucent, not shining, yellowish green, irregularly substriulate, subplicate at the suture, very elegantly granularly decussated; whorls 6, rapidly increasing, the last large, rounded, descending at the aperture; aperture white, peristome white-lipped within, the margins joined by a thin, diaphanous, parietal callus. Diam. 17 mill.

*Berytus, Syria.*

H. SCHUBERTI, Roth. Pl. 43, figs. 3–5; Pl. 44, figs. 8, 9.

Narrowly umbilicated, thin, obliquely striate, shining, pellucid, yellowish corneous; whorls 6, the last a little inflated, deflected in front; peristome angulately expanded, white-lipped within.

Diam. 18·5 mill.

*Caria, Greece.*

Var. RISSOANA, Pfr. Fig. 5.

Last whorl obsoletely angulated, with a light zone, peristomal lip reddish.

*H. frutis*, Parr. is a synonym.

Var. CIRCASSICA, Charp. Figs. 8, 9.

Widely rugosely striate, subopaque, yellowish fawn color or corneous; whorls 7, the last a little descending anteriorly, obtusely angular, with a pallid dorsal zone, convex below; peristome acute, thinly labiate within, columellar lip widely reflected, thickened.

Diam. 21 mill.

*Russian Transcaucasia.*

*H. Colchica*, Bayer is a synonym.

H. TALISCHANA, Martens. Pl. 44, figs. 10, 11.

Perforate, thin, closely plicately striate and minutely granular, brownish corneous; whorls 6, the last rounded, descending in front; peristome pallid, slightly expanded, white-lipped within.

Diam. 17 mill.

*Lenkoran, province of Talisch, S. W. Coast of Caspian Sea.*

H. CARTHUSIANA, Muller. Pl. 44, figs. 12, 13.

Perforate, minutely striate, pellucid, corneous white, apex mamillate; whorls 5½, scarcely convex, the last a little deflected in front; peristome acute, subexpanded, reddish, labiate within.

Diam. 14 mill.

*Europe.*

The synonymy includes *H. nitida*, Chemn., *H. Gibbsii*, Leach, *H. Gypsii*, Fer., *H. bimarginata*, Gray., *H. claustralis*, Ziegler, *H. convexa*, Arad., *H. lucernalis* and *H. gilvina*, Zglr. *H. lucina*, *H. subnodulosa* and *H. terrestris*, Chier., *H.* (var.) *Arvensis*, Pini. (Belgiojoso, Italy).

Var. RUFILABRIS, Jeffreys.

Globosely depressed, polished, whorls slowly increasing; aperture rounded lunate, margin reddish brown, with narrow, high interior callus. Diam. 8–10 mill. A small form is 7 mill. diam.

Is Var. *minor*, Drap.

Var. EPISEMA, Bourg. *Spain, Bosnia, Hungary.*

Var. ARCHIMEDEA, Benoit.

Light flesh color, subopaque, striate, body whorl scarcely descending in front; peristome acute, red-lipped within.

*Sicily.*

Var. LEUCOLOMA, Stabile.

Small, lip entirely white. Var. *albolabiata*, Baudon, is identical.

Var. RADIATA, Westerl.

Depressed, porcellanous, with translucent rays; aperture horizontal, basal margin strict, peristome entirely white.

*Viareggio, Italy.*

H. PSEUDOSERICEA, Benoit. Pl. 44, figs. 14–15.

Perforate, thin, subpellucid, a little shining, substriate, brownish corneous, with very short inconspicuous bristles; whorls 5, the last subangulated; peristome patulous, brownish-lipped within.

Diam. 10 mill.

*Sicily.*

H. OBSTRUCTA, Fer. Pl. 44, figs. 16–18.

Narrowly perforate, smooth, subpellucid, corneous white; whorls 4½, the last subdeviating, whitish towards the aperture, margin reddish; peristome simple, white-lipped within. Diam. 12 mill.

*Egypt, Tripoli, Syria.*

It is *H. obstrusa*, Fer. (error typ.) and *H. adpressula*, Friv.

H. SUBOBSTRUCTA, Bourg. Pl. 44, figs. 19–21.

Narrowly perforate, diaphanous, smooth or very slightly striate, brownish white or light reddish or bluish corneous; whorls 6, a little convex, regularly increasing, with impressed suture, the last suddenly deflected towards the aperture; peristome reddish, acute, white-lipped within. Diam. 10 mill.

*Anatolia.*

H. GREGARIA, Ziegler. Pl. 44, figs. 22, 23.

Imperforate, or subrimate, striulate, a little shining, subpellucid, yellowish corneous or brownish, not banded; whorls 6, a little convex, the last descending in front; peristome scarcely patulous, white-lipped within. Diam. 12 mill.

*Sicily.*

It is *H. Syriaca*, Var. β. of Pfeiffer, *H. onychina*, Var., Rossmässler., and *H. occulta*, Bivona.

H. SYRIACA, Ehrenberg. Pl. 44, figs. 24–26.

Subimperforate, greyish, subpellucid, with usually two white opaque bands, a little shining, very minutely rugulose; whorls 5, somewhat flattened, the last scarcely descending in front, peristome subpatulous, brownish, white-lipped within. Diam. 12·5 mill.

*Syria, Egypt, Algiers.*

It is *H. incolata*, Ziegler, and *H. onychina*, Rossm. in part.

H. ROTHI, Pfr. Pl. 44, figs. 27–30.

Subcovered perforate, opaque, soiled white, bifasciate, upper band narrow, brownish, lower one wider, diluted and pellucid; whorls 6, the last scarcely descending; peristome acute, white-lipped within. Diam. 13·5 mill.

*Syra.*

Var. DRAXLERI, Zelebor. Pl. 44, figs. 29, 30.

Shell more globose, aperture smaller, umbilicus covered.

H. PISIFORMIS, Pfr. Pl. 44, figs. 31–33; pl. 39, figs. 92–94.

Narrowly umbilicated, rather thin, obliquely striulate, striæ more distinct at the suture, yellowish corneous, with an opaque white band; whorls 5½, a little convex, the penultimate subcarinated, the last subdescending in front; peristome acute, subexpanded, remotely strongly white-lipped within. Diam. 11 mill.

*Caucasus.*

*H. Arpatschaiana*, Mart. (not Mousson), Var. *Sewanica*, Mart. (Pl. 39, figs. 92–94) may be here referred.

H. GLOBULA, Krynicki. Pl. 44, figs. 34–36.

Narrowly perforate, thin, pellucid, scarcely shining; irregularly striulate, yellowish corneous; whorls 7, rounded, the last scarcely descending in front; peristome acute, with a thin, elevated, internal line. Diam. 8–10 mill.

*Caucasus.*

More globose than the preceding species, but may be a variety of it.

H. PSEUDOGLOBULA, Mousson. Pl. 44, figs. 37, 38.

Narrowly umbilicated, rather solid, unequally striulate, lightly, very minutely rugulose, scarcely shining, brownish corneous; whorls 5½, the last very slightly descending in front; obtusely angulated, whitish towards the aperture; peristome strongly labiate within.

Diam. 8 mill.

*Transcaucasia.*

H. Cruzyi, Bourg. Pl. 44, figs. 39–41.

Rimate, diaphanous, whitish corneous, scarcely striulate; whorls 6, convex, the last scarcely descending anteriorly; peristome white-lipped within. Diam. 7 mill.

*Sebastopol, Crimea.*

H. Rokniaca, Bourg. Pl. 44, figs. 42, 43.

Profoundly perforate, conical above, compressed below, subpellucid, shining, fragile, elegantly striate, corneous, lighter at the aperture, with whitish flames around the suture; whorls 6, slowly increasing, last not descending, with distinct peripheral angle, vanishing towards the aperture; peristome white-lipped within, margins joined by a thin parietal callus. Diam. 10 mill.

*Roknia, prov. Constantine, Algiers.*

H. Villæ, Desh. Pl. 44, fig. 44.

Imperforate, thin, fragile, hyaline, white, thinly striate; whorls nearly 7, narrow, slowly increasing, with deep suture; peristome simple, acute, shortly reflected, white within. Diam. 8 mill.

*Hab. unknown.*

*Unfigured Species of Carthusiana.*

H. Daphnica, and var. flavida, Platania. *Sicily.*
H. iadola, H. Vintiensis, H. innoxia, H. leptomphala, all of Bourguignat. *France.*
H. Lamalonensis, Reynes. *France.*
H. ousterea, H. monerebia, Mabille. *Corsica.*
H. Cantianiformis, Bourg. *Folkestone*; *Boulogne.*
H. Delacourti, Mabille. *France.*
H. Langsdorffi, Milliere. *France.*
H. cotinophila, Bourg. *France.*
H. carmelita, Tristram, *Palestine.*
H. encyæ, H. euscepia, Bourg. *Lake Balaton, Hungary.*
H. Lamalouensis, Bourg. *France.*
H. Rusicadensis, Letourn. *Tunis, Algiers.*
H. lenabaria, and H. Nicaisiana, Letourn. *Kabylœa.*
H. Samsunensis, Zelebor. *Samsun, Asia Minor.*
H. Schotti, Zelebor. *Syria.*
H. pachnodes, H. holotricha, Böttger. *Caucasus.*
H. flaveola, Krynicki. *Georgia.*
H. solitudinis, Bourg. *Heliopolis, Syria.*
H. chola, Pechaud. *Tunis.*

H. CHEFFANA, Bourg. *Tunis.*
H. ACORTA, Letourn. et Bourg. *Tunis.*

Subsection VII. NUMMULINA, Kobelt. 1871.

H. NUMMUS, Ehrenb. Pl. 44, figs. 45, 46.

Narrowly umbilicated, pellucid, yellowish brown, with whitish striæ; whorls 5½, the last with acutely carinated periphery; lip thin, subreflected. Diam. 17 mill.

*Syria.*

The synonyms are *H. Hedenborgi*, Pfr., and *H. oxygyra*, Boiss.

H. PROMETHEUS, Böttger. Pl. 44, figs. 47–49.

Larger than *H. nummus*, with much larger umbilicus, base not rugosely striate, very obsoletely granulated, distinctly descending at the aperture, peristome sublabiate with white within.

Diam. 17·5–20·5 mill.

*Caucasus.*

H. SPIROXIA, Bourg. Pl. 44, figs. 50, 51.

Subperforate, not shining, subpellucid, striate above and below, with spiral, subpilose epidermal lines, corneous, carina whitish, rugose, subcrenulated; whorls 6, rapidly increasing, suture linear, last whorl shortly descending in front; lip callously thickened within. Diam. 14 mill.

*Alexandretta, Syria.*

H. GENEZARETHANA, Mousson. Pl. 44, figs. 52, 53.

Moderately umbilicated, thickly membranaceous, subpellucid, smooth, striate, very minutely and elegantly granular, fulvous or paler, not shining, suture linear; whorls 5½, the last not descending, base inflated round the umbilicus; peristome simple, lower margin thinly expanded, labiate within, columella broadly reflected.

Diam. 22 mill.

*Tiberias, Palestine.*

*H. Tiberana*, Mouss. is a synonym.

H. JASONIS, Dubois. Pl. 45, figs. 54, 55.

Widely umbilicated, rather thin, strongly costulate-striate, the interstices very minutely granular, subdiaphanous, light-corneous, or whitish, suture plane, thread-like; whorls 6½, periphery strongly carinated, carina subcrenate, last whorl scarcely descending in front; peristome not labiate, reflected below. Diam. 24 mill.

*Mingrelia.*

H. Doumeti, Bourg. (Unfigured). *Tunis.*

Subsection VIII, Eulota, Hartmann. 1842.

H. inchoata, Morelet. Pl. 45, fig. 56.

Perforate, thin, striulate, rugulose at the suture, diaphanous, yellowish corneous or brownish, scarcely shining, last whorl with a chestnut band; whorls 6½, slowly increasing, the last inflated, scarcely descending in front; peristome thin, slightly labiate within, margins distant, columella strongly reflected. Diam. 20 mill.

*Portugal.*

H. fruticum, Müller. Pl. 45, figs. 57–59.

Moderately umbilicated, globose, shining, opaque, obsoletely striate, whitish, yellowish, rosy or reddish brown, sometimes with a chestnut band; whorls 5–6, the last with inflated base; peristome subpatulous, sublabiate. Diam. 21 mill.

*Sweden, Germany, France, Switzerland.*

*H. carduelis*, Reibisch, *H. terrestris*, Gmel., *H. cinerea*, Poir., *H. Lua*, Chier. are synonyms.

Var. Andersoni, Clessin. Fig. 59.

Smaller, globose, solid, with more depressed spire and suture less impressed. Diam. 17–18 mill.

*Northern Sweden.*

Var. unifasciata, Böttger.

Elevated, shining, yellowish, with a chestnut band, with perceptible spiral sculpture, peristome white-lipped within.

Diam. 21 mill.

*Caucasus.*

H. fruticola, Krynicki. Pl. 45, figs. 60, 61.

Very narrowly umbilicated, rather thin, striate, whitish; whorls 7, the last deflected in front; peristome acute, narrowly white-lipped within, columella strongly reflected. Diam. 17 mill.

*Crimea.*

H. Schrenckii, Middend. Pl. 56, figs. 62, 63.

Rather narrowly umbilicated, somewhat thin, striate, lightly decussated, diaphanous, corneous white, with a chestnut band; whorls 6½, the last not descending; peristome lightly labiate within.

Diam. 23 mill.

*Siberia, Russia.*

*H. Siberica*, Friv., is a synonym.

H. ARISTATA, Krynicki. Pl. 45, figs. 64, 65.

Moderately umbilicated, thin, pellucid, shortly hispid, striate and occasionally granular, brownish corneous, with a whitish band; whorls 7, planulate; peristome patulous, subreflected, interiorly margined. Diam. 9 mill.

*Caucasus.*

H. EUAGES, Böttger. Pl. 45, figs. 66–68.

Moderately umbilicated, subpellucid, reddish brown, strongly costulate, the interstices very minutely granular, suture very deep; whorls 6½, the last descending in front, obsoletely angulated; peristome a little expanded, rosy-lipped within. Diam. 16·5 mill.

*Caucasus.*

Var. DEPRESSA, Böttger.

More depressed, with stronger keel, and more oval aperture. Diam. 16·5 mill.

H. SEPTEMGYRATA, Mousson. Pl. 45, fig. 69.

Narrowly umbilicated, thin, fragile, pellucid, strongly striate above, more lightly striate below, shining, dark brown, with a whitish band; whorls 7, slowly increasing, the last a little descending in front, with convex base, very minutely spirally lined around the umbilicus; peristome acute. Diam. 16 mill.

*Transcaucasia.*

H. FLAVOLIMBATA, Böttger. Pl. 45, figs. 70–72.

Smaller, more depressed than the last species, very narrowly perforate; whorls 6, the last angulated; olivaceous, with a whitish band, here and there radiated with yellow, with a yellowish line behind the aperture, strongly striate above, obsoletely so below, with spiral lines on the base; whorls 6–6½, the last scarcely descending, periphery angulated; peristome expanded, lipped within. Diam. 12·5–14 mill.

*Transcaucasia.*

H. NORDENSKIOLDI, Westrl. Pl. 45, figs. 76–78.

Moderately umbilicated, globose or globose depressed, pellucid, smooth, rarely sparsely short haired, shining, yellowish red, upper whorls reddish brown, with a white band, closely costulate above and below; whorls 6½–7, the last not descending in front, obtusely subangulated; periphery thinly, widely sublabiate. Diam. 12–14 mill.

*Jenissei, Siberia*

*H. rufescens*, Schrenck is a synonym.

H. HELVOLA, Friv. Pl. 45, figs. 73–75.

Moderately umbilicated, rather solid, rugulosely striated, decussated by very minute spiral lines, scarcely shining, corneous, with a chestnut band margined below with white; whorls 6½, slowly increasing, the last not descending, with subangulate periphery; lip slightly expanded, a little margined within. Diam. 19 mill.

*Siberia.*

H. STRIGELLA, Drap. Pl. 45, figs. 79–83.

Moderately umbilicated, striate, corneous, with a whitish band, fugaciously pubescent; whorls 5½–6, somewhat flattened, the last descending in front; periphery remotely labiate. Diam. 15 mill.

*Middle Europe, Caucasus.*

The synonyms are *H. sylvestris*, Alt., *H. Altenana*, Gärtn., *H. fruticosa*, Parr., *H. cornea*, Hartm., *H. piligera*, Andrz., *H. vitrinosa*, Ziegl., *H. conspurcata*, Nilss. (Juv.), *H. hexagyra*, Mühlf., *H. peregra*, Parr.

Var. MOLDAVIÆ, Clessin.

Larger, thicker, brownish corneous, flattened, slightly striate; whorls, 7, slowly increasing; peristome expanded; umbilicus wide, perspective. Diam. 18·5 mill.

Var. COLLINIANA, Bourg. Figs. 81–83.

Umbilicus wider, infundibuliform, aperture smaller, whorls well-rounded, more slowly increasing. Diam. 15 mill.

*Sweden, Norway.*

H. RUSCINICA, Bourg. Pl. 46, figs. 90–92.

Moderately umbilicated, finely striate, epidermis with vestiges of hairy scales, yellowish brown with a transparent peripheral band; whorls 5, well-rounded, moderately increasing, periphery subangulated, last whorl descending in front; peristome slightly expanded. Diam. 17 mill.

*Pyrenees.*

H. APENNINA, Mühlf. Pl. 45, figs. 84–87.

Narrowly umbilicated, striulate, very lightly spirally lineolate and foveate, whitish corneous, becoming brownish anteriorily; whorls 6, convex, slowly increasing, the last rounded, slightly descending in front; lip thin, with a remote white internal callus. Diam. 16·5–19 mill.

*Apennine Mts. Italy.*

Var. EUBŒICA, Kobelt. Pl. 43, figs. 6, 7. *Mts., Greece.*

H. MARTENSIANA, Tiberi. Pl. 45, figs. 88, 89.

Narrowly umbilicated, solid, rugulosely striate, subgranulate, bluish corneous or pale fulvous; whorls 6, convex, slowly enlarging, with impressed suture, the last whorl wider, planulate above, subinflated below, scarcely descending in front; peristome acute, brown-lipped within, subexpanded. Diam. 21 mill.

*Mts. Italy.*

*H. lavata*, Tiberi is a synonym. Very probably this is only a variety of *H. Appennina.*

H. SUBORBICULARIS, Martens. Pl. 46, figs. 93–95.

Narrowly umbilicated, striulate, very lightly spirally lineolate, polished, greyish white, apex blackish; whorls 6, slowly increasing, the last rounded, scarcely descending; peristome white-lipped within. Diam. 17 mill.

*Apennine Mts.*

H. ORSINII, Porro. Pl. 46. figs. 96–3.

Moderately umbilicated, somewhat solid, lightly striate, whitish above, with a rather broad yellowish or brownish band, below yellowish or brown; whorls 6, slowly increasing, the last narrow, scarcely descending in front; peristome acute, slightly margined. Diam. 15–18 mill.

*Italy, Sicily.*

*H. ochracea*, Ziegler is a synonym.

Var. MAJELLÆ, Kobelt. Figs. 99–1. *Abruzzi, Italy.*

Var. PICÆNA, Tiberi. Figs. 2, 3. *Abruzzi, Italy.*

H. PARREYSSI, Pfr. Pl. 46, figs. 4–6.

Rather narrowly umbilicated, somewhat solid, granularly striate, reddish corneous, with two wide white bands, one at the suture, the other at the periphery; whorls 5½, slowly increasing, the last rounded, shortly descending in front, base more distinctly granular; peristome a little expanded, white-lipped within, basal margin obsoletely dentate. Diam. 10–15 mill.

*Apruti, Italy.*

*H. modesta*, Parr, is a synonym. This species is too closely allied to *H. Orsinii*, Porro.

H. ALPHABUCELLIANA, Paulucci. Pl. 46, figs. 7–9.

Rather narrowly umbilicated, striulate, light chestnut color, whitish at the suture and on the periphery; whorls 7, the last large, slightly descending in front; aperture fulvous within.

Diam. 16 mill.

*Abruzzi, Italy.*

H. RUFISPIRA, Martens. Pl. 46, figs. 10–16.

Rather narrowly umbilcated, unequally rugulose-striate above, more closely striulate below, yellowish white, a little shining; whorls 5–5½, with superficial suture, the last a little descending in front, with subangulate periphery, the angle becoming evanescent towards the aperture, with a white band, base convex; peristome acute, white-margined within, extremities approaching.

Diam. 14–18 mill.

*Sarafschan*, and in Alpine mountains, *Turkestan.*

Var. ALBIDORSALIS, Mouss. Figs. 14–16.

More depressed with stronger peripheral angle with a half whorl additional, narrower umbilicus, and stronger, white banding.

*Kuldscha, Central Asia.*

H. BRIGANTINA, Mengo. Pl. 46, figs. 17, 18.

Narrowly umbilicated, thin, yellowish corneous; whorls 5, slightly convex, the last a little descending, peristome acute.

*Braganza, Portugal.*

*Unfigured Species of Eulota.*

H. SOCCALIANA, Letourn. *Corfu.*

H. CAPUSI, Villeserre. *Turkestan.*

H. PANTANELLII, Stefani (*H. strigella*, Pautanelli, not Drap.), *Italy.*

H. HIRCI, Clessin. *Croatia.*

H. BRIANDI, H. GUERETINI, H. DUBREUILI, H. EUCYÆ, H. EUSCEPLÆ, H. RENOUFI, H.FUEREDENSIS, H. BAKONYCA, H. PLATTENICA, Servain. *Lake Balaton, Hungary.*

H. BOURGUIGNATI, Pfr. (*H. fruticola*, Bourg.) *Crimea.*

H. CAIDIS, Ancey. *Algiers.*

H. EUCESTELLA, H. MICROSPILA, Bourg. *Tunis.*

H. URBARANA, Pechaud. *Tunis.*

H. EUCANA, Hagenmüller. *Tunis.*

H. HADRUMETORUM, H. ENTARA, H. MAYETI, H. VALERYANA, H. EUMONA, H. PACHESTHA, H. CHARMESIANA, H. BILLOTTIANA, H. MAXULANA, Letourn. et Bourg. *Tunis.*

H. MOSELLICA, H. AUBINIANA, H. LEMONIA, H. DUMORUM, H. SEPARICA, H. VELLAVORUM, H. LEPIDOPHORA, H. BUXETORUM, H. NEMETUMA, H. CUSSETENSIS, and H. CEYSSONI, Bourg. *France.*

Subsection IX, DORCASIA, Gray. 1845.

H. RUBENS, Martens. Pl. 46, figs. 19–24.

Narrowly umbilicated, rather solid, strongly striated, decussated by slight but conspicuous spiral lines, scarcely shining, brownish corneous, with a white peripheral band; whorls 6, a little convex, slowly increasing, the last descending a little at the periphery; peristome slightly labiate within. Diam. 16.5 mill.

*Sarafschan, Turkestan.*

Var. CONCOLOR, Martens. Fig. 21.

White band evanescent.

Var. FINSCHIANA, Martens. Fig. 22.

Subglobose, last whorl lighter colored.

Var. ZEILIANA, Martens. Fig. 23.

Light colored, spire more produced.

Var. REGELIANA, Martens. Fig. 24.

Shell depressed, whitish.

H. PHÆOZONA, Martens. Pl. 46, figs. 25, 26.

Narrowly umbilicated, roughly striate, with close, slight, spiral lines, white, with a chestnut band; whorls 5½, the last scarcely descending in front, base convex; peristome slightly thickened.

Diam. 15–16 mill.

*Kokand, Turkestan.*

H. SIMILARIS, Fer. Pl. 46, figs. 27–30; Pl. 47, figs. 33–37.

Narrowly umbilicated, slightly striate, diaphanous, light corneous, with, or (more usually) without a chestnut band, spire more or less elevated; whorls 5, slightly convex, lip white, reflected.

*Bengal, China, Mauritius, Seychelles, Brazil, Buenos Ayres, West Indies, Natal, Sandwich Is. etc.*

This species inhabits the coffee tree, and commerce has spread it all over the world, wherever coffee is cultivated. Its synonyms

include *H. translucens*, King, *H. Woodiana*, Lea, *H. squalida*, Ziegl., *H. addita*, Fer. *H. epixantha*, Pfr. (fig. 30), from China, is regarded by Martens and others, as a juvenile.

Var. STIMPSONI, Pfr. Pl. 47, fig. 33.

Narrowly umbilicated, somewhat solid, closely striulate, shining, brownish corneous; whorls 5½, moderately increasing, the last not descending, turgid, periphery obsoletely angulated, base more distinctly striate; peristome white, shortly reflected, columellar lip nearly perpendicular. Diam. 15 mill.

*Japan.*

*H. genulabris*, Mart. is a synonym.

Var. ARCASIANA, Crosse and Debeaux. Pl. 47, figs. 36, 37.

Scarcely perforate, not thick, a little shining, with thin, irregular, oblique striæ, milk white; whorls 6, moderately increasing, the last not descending, base inflated, excavated around the umbilicus; peristome white, reflected. Diam. 16 mill.

*Shanghai, China.*

Var. BORBONICA, Desh. Pl. 47, figs. 34, 35.

Narrowly umbilicatad, depressed, irregularly, obsoletely striated, yellowish corneous with a brown band; whorls 6, the last cylindrical; peristome expanded, white. Diam. 12–15 mill.

*Ins. Bourbon.*

H. CESTUS, Benson. Pl. 47, figs. 31, 32.

Narrowly perforate, thin, distinctly striated and very obsoletely granulated, light corneous, with a peripheral chestnut band; whorls 5, the last scarcely descending in front, periphery subangulated; peristome simple, thin, slightly expanded. Diam. 15 mill.

*Bengal.*

This may also be a variety of *H. similaris.*

H. HONGKONGIENSIS, Desh. Pl. 47, figs. 38, 39.

Narrowly umbilicated, thin, pellucid, whitish or yellowish, with a chestnut peripheral line, irregularly striate; whorls 5½, convex, slowly enlarging, the last cylindrical; lip narrow, white, a little thickened within. Diam. 16 mill.

*Hongkong, China.*

Probably another variety of *H. similaris.*

H. OBSCURA, Desh. Pl. 47, figs. 41, 42.

Narrowly perforate, thin, pellucid. irregularly thinly striated, dark reddish; whorls 6, slowly increasing, with superficial suture,

base convex; aperture reddish, with a whitish margin, scarcely expanded or thickened within. Diam. 15 mill.

*Hong Kong, China.*

This is also suspected to be a variety of *H. similaris.*

H. STRIATISSIMA, Desh. Pl. 47, figs. 42, 43,

Narrowly perforate, thin, fragile, pellucid, yellowish, minutely plicate, crossed by microscopic spiral lines; whorls 5½, the last much larger, very obtusely angulated on the periphery; lip thin, a little reflected. Diam. 15 mill.

*Hong Kong, China.*

H. NUCLEUS, Desh. Pl. 47, fig. 44.

Narrowly umbilicated, corneous, pellucid, yellowish, irregularly striate, suture well-impressed; whorls 6, convex, narrow, the last a little depressed in front; lip thickened, reflected, white.

Diam. 18 mill.

*Shanghai, China.*

Perhaps a variety of *H. similaris,* Fer.

H. ARUNDINETORUM, Heude. Pl. 47, figs. 45, 46.

Narrowly umbilicated, fragile, pellucid, fulvous, rarely with a light rufous peripheral band, minutely spirally striate; whorls 5, the last rapidly enlarging, not descending, periphery obsoletely angulated; lip narrow, scarcely reflected, reddish or white.

Diam. 13 mill.

*River Yangtze, China.*

H. GRAMINUM, Heude. Pl. 47, fig. 47.

Narrowly umbilicated, corneous or flavous, sometimes with a chestnut band, spirally minutely or strongly striate; whorls 6, convex, slowly increasing, the last obsoletely angulated; aperture white, lip scarcely thickened, slightly reflected. Diam. 18 mill.

*River Yangtze, China.*

H. STRAMINEA, Heude. Pl. 47, figs. 48, 49.

Narrowly umbilicated, thin, pellucid, whitish or yellowish, sometimes with a chestnut band, minutely spirally striate; whorls 5½, convex, with deep suture, last whorl laterally convex, flattened below, descending in front; peristome subreflected..

Diam. 21 mill.

*Yangtze River, China.*

H. CREMATA, Heude. Pl. 47, figs. 52, 53.

Narrowly umbilicated, yellowish, with a narrow chestnut band, very minutely spirally striate, suture superficial; whorls 4–5, convex,

the last scarcely descending, obtusely angulated; peristome white, a little expanded. Diam. 19 mill.

*Ouyuan, China.*

H. Fortunei, Pfr. Pl. 47, figs. 50, 51.

Sinistral, narrowly umbilicated, thin, whitish, shining, with usually a chestnut band, closely, minutely, obliquely striate; whorls 5½, the last convex, scarcely descending; peristome white, thickened reflected. Diam. 16–21 mill.

*Shanghai, China.*

Von Martens and others have suspected this to be a reversed *H. similaris*,

Var. meridionalis, Mollend. Fig. 51.

Yellowish corneous, without band, globosely conical, whorls somewhat flattened. Diam. 17 mill.

H. uncopila, Heude. Pl. 47, fig. 56.

Sinistral, thin, yellowish, with a chestnut band, spirally striate, with oblique lines of short hairs, suture rather deep; whorls 5, rather rapidly increasing, the last inflated, obsoletely angulated, anteriorly scarcely descending; peristome subthickened, white or reddish, expanded. Diam. 21 mill.

*River Yangtze, China.*

H. lutosa, Desh. Pl. 47, figs. 54, 55.

Narrowly umbilicated, whitish, under a black pigmental epidermis, opaque, suture deep; whorls 5, narrow, convex, slowly increasing, the last a little larger, with convex base; aperture white, peristome expanded, thickened within. Diam. 7 mill.

*Pekin, China.*

H. fasciola, Drap. Pl. 47, figs. 57–59.

Narrowly umbilicated, thin, diaphanous, whitish corneous with a narrow chestnut band; whorls 5½, the last scarcely angulated; peristome white, thickened. Diam. 15 mill.

*Hab. unknown.*

Described as a French species, but has not been recognized;

H. dichroa, Pfr. Pl. 47, figs. 63, 64.

Narrowly umbilicated, thin, obliquely striated, lightly decussated by close spiral striæ, diaphanous, with numerous, interrupted, white, opaque spiral lines; whorls 6, the last deflected in front, base convex; lip thin, a little expanded above, shortly reflected below. Diam. 15·5 mill.

*Shanghai, China.*

H. Maackii, Gerstfeldt. Pl. 47, figs. 60–62: Pl. 48, figs. 65–67.

More or less perforate or narrowly umbilicated, thin, translucent, distinctly obliquely striate or subplicate, scarcely shining, yellowish brown, with three chestnut bands, suture moderate; whorls 6–7; lip a little reflected, thickened within. Diam. 30 mill.

*Amur country; L. Poiang, China.*

Var. Conrauxiana, Heude. Figs. 62, 65, 66.

Shell more depressed, with larger umbilicus.

This=var. *depressa*, of Pfr. (Figs. 65, 66).

Var. unizonalis, H. Adams. Fig. 67.

Whorls less convex, the last larger, with a single peripheral band.

*H. Kiangsinensis*, Martens, is a synonym.

H. Billeana, Heude. Pl. 48, figs. 68–70.

Narrowly umbilicated, solid, closely and strongly obliquely striate, fulvous, with three chestnut bands; whorls 5, the last large, slightly descending in front, convex below; peristome scarcely reflected, thickened within. Diam. 27 mill.

*Kiuntcheou, China.*

Perhaps only a variety of *H. Maackii.*

H. Weyrichi, Schrenck. Pl. 48, figs. 71, 72.

Umbilicus narrow, partly covered, a little solid, obliquely striate or subplicate, decussated by spiral lines, yellowish white or greenish yellow, with a chestnut band, opaque; whorls 5–6, the last ventricose; lip acute, subreflected, with a white rim within.

Diam. 28 mill.

*Sachalien Isl.*

H. Tourannensis, Souleyet. Pl. 48, figs. 73, 74, 77.

Narrowly umbilicated, distinctly, closely striated, greyish yellow, subdiaphanous; whorls 6, the last with inflated base; peristome pinkish, a little expanded, white lipped within. Diam. 15 mill.

*Cochin China, Macao, Burmah.*

*H. globula*, Lea. *H. clusilis*, Val. and *H. Bolus*, Benson. (fig. 77.) are synonyms.

Var. rhodostoma, Moll.

Peristome rosy or purple.

H. RUPPELLI, Desh. Pl. 48, figs. 75, 76.

Narrowly perforate, with slight quincunx puncticulations and irregular oblique striæ, shining, dark chestnut color, suture channeled; whorls 5, periphery obtusely angulated; aperture bright chestnut, lip narrow, reflected; reddish. Diam. 21 mill.

*Moupin, Eastern Thibet.*

H. ARGILLACEA, Fer. Pl. 48, figs. 78, 79.

Perforate, thin, diaphanous, brownish corneous, suture moderate; whorls 4½, the last inflated, suddenly deflected in front; peristome widely expanded, shortly reflected. Diam. 20–22 mill.

*Ins. Timor, Flores.*

*H. cyclostomopsis*, Lea. is a synonym.

H. RADICICOLA, Benson. Pl. 48, fig. 85.

Perforate, thin, striulate, translucent, greenish corneous; whorls 4½, the last obsoletely angulated, shortly descending in front; aperture diagonally subquadrate; lip thin, acute, shortly expanded. Diam. 12 mill.

*Himalayas, India.*

H. ELATIOR, Martens. Pl. 52, figs. 14, 15.

Subcovered perforate, striulate and malleate, a little shining, light greenish yellow, with two wide chestnut bands; whorls 5, the last rounded, slightly descending in front; lip thickened, white, shortly reflected, nearly covering the umbilicus. Diam. 15·5 mill.

*Himalayas.*

H. BRARDIANA, Pfr. Pl. 52, fig. 97.

Narrowly umbilicated, thin, striate, pellucid, fulvous, with irregular yellowish opaque maculations; whorls 5, the last not descending in front, periphery obtusely angulated; peristome simple, thin, expanded. Diam. 14 mill.

*Ins. Bourbon.*

H. TRANSVERSALIS, Mousson. Pl. 48, figs. 80, 81.

Narrowly umbilicated, striulate, subdiaphanous, white under a fugacious thin epidermis, sometimes with a superior corneous band; whorls 4½, rapidly increasing, the last deflected in front, more convex below, angulated around the umbilicus; peristome sublabiate, reflected, distinctly constricted exteriorly. Diam. 10–14 mill.

*Ins. Bali.* and *Madura.*

H. DESPECTA, Gray. Pl. 48, fig. 86.

Narrowly umbilicated, thin, rugosely striate, yellowish brown; spire a little elate, with deep suture; whorls 5, convex, the last inflated; lip simple, a little thickened within. Diam. 22 mill.

? *Loo Choo Is.*

H. CRASSULA, Phil. Pl. 48, figs. 90–92.

Narrowly umbilicated, scarcely striulate, epidermis yellowish, with short hairs in quincunx order, suture deep; whorls 5, the last inflated below and slightly angulate round the umbilicus, distinctly descending in front; lip rosy white, thickened, reflected.

Diam. 16·6–18 mill.

*Java, Sumatra.*

*H. Storiana,* Mousson. is a synonym.

H. CRYPTOPILA, Mousson. Pl. 48, figs. 87–89.

Narrowly umbilicated, somewhat solid, obliquely striate and punctate, with a deciduous, very short pile, subdiaphanous, greyish corneous, suture linear; whorls 4½, the last carinate, shortly descending in front, inflated below and subangulated around the umbilicus; aperture diagonal, peristome simple, upper margin shortly expanded, basal narrowly reflected. Diam. 18 mill.

*Ins. Rakata.*

Var. HELICINOIDES, Mouss.

Shell smaller, with a light peripheral band. Diam. 12·7 mill.

*Java.*

H. ZOROASTER, Theobald. Pl. 48, fig. 93.

Umbilicated, minutely striate, corneous, with usually a peripheral chestnut band, whorls 5; last obtusely angulate on the periphery; peristome thin, a little reflected. Diam. 15 mill.

*Between Ava. and Prome.*

H. SCALPTURITA, Benson. Pl. 48, fig. 94.

Umbilicus narrow, striulate, closely spirally striate, a little shining, whitish, light brown on the apex and towards the aperture, often with a chestnut band; whorls 5½, the last rounded, a little descending in front; peristome thin, somewhat expanded. Diam. 22 mill.

*Ava.*

H. EVERETTI, H. Adams. Pl. 49, fig. 95.

Umbilicated, lightly plicate-striate above, inconspicuously granulated, light fulvous, under a thin epidermis of the same color, with a peripheral chestnut band; whorls 4, convex, the base obtusely

angulated around the umbilicus; peristome expanded and narrowly reflected. Diam. 13 mill.

*Sarawak, Borneo.*

H. TOMENTOSA, Pfr. Pl. 49, fig. 96.

Narrowly umbilicated, thin, somewhat hairy, cinnamon color; whorls 5, rapidly enlarging, the last not descending, base convex, compressed around the umbilicus; aperture lighter colored, shining, peristome red-lipped within, expanded and somewhat reflected, angulated at the base. Diam. 16 mill.

*Sarawak, Borneo.*

H. MENDAX, Martens. Pl. 49, figs. 97–99.

Moderately umbilicated, striulate, corneous fulvous; whorls 3½, a little excavated at the suture, the last deflected in front, subangulated on the periphery, base convex, with an angle around the umbilicus; peristome thin, reflected. Diam. 11 mill.

*Atapupu, Ins. Timor.*

H. BACTRIANA, Hutton. Pl. 49, figs. 13, 14.

Narrowly umbilicated, rather thin, obliquely rugosely striate and punctulate above, smoother below, a little shining, whitish corneous; whorls 6, moderately increasing, the last convex, scarcely descending at the aperture; aperture diagonal, peristome a little expanded, white-lipped within. Diam. 14 mill.

*Candahar, India.*

H. MIGHELSIANA, Pfr. Pl. 49, figs. 6, 7.

Narrowly umbilicated, solid, closely plicate, obsoletely spirally striated, chestnut color or yellowish brown; whorls 5, the last ventricose, slightly descending in front, compressed around the umbilicus; peristome simple, strongly white-lipped within. Diam. 19 mill.

*Ins. Mindanao.*

H. FODIENS, Pfr. Pl. 49, figs. 8, 9.

Narrowly umbilicated, rather thin, diaphanous, closely obliquely plicate, sometimes lightly decussated by spiral lines, brownish corneous; whorls 5½, the last with subangulated periphery; aperture flesh color, shining, peristome subexpanded, sublabiate within. Diam. 21 mill.

*Ins. Luzon and Siquijor, Philippines.*

H. NAUTILOIDES, Val. Pl. 52, figs. 89–91.

Narrowly umbilicated, thin, pellucid, smooth, yellowish corneous; whorls 4, rapidly increasing, the last large, wide, convex; peristome simple, acute, white lipped below. Diam. 21 mill.

*Hab. unknown.*

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*South African Species.*

H. ROSACEA, Müller. Pl. 49, fig. 100.

Narrowly umbilicated, partly covered, solid, obliquely striate, scarcely shining, yellowish- or rosy–white or clouded with grey; whorls 5, convex. the last large, inflated, minutely rugosely malleate, scarcely descending in front, base convex; aperture rosy, peristome similarly colored, thick, expanded or revolute, extremities joined by a brownish violaceous callus. Diam. 45 mill.

*Cape of Good Hope.*

It is *H. globulus*, Var. *β.* of Pfr.

H. GLOBULUS, Müller. Pl. 49, fig. 1.

Subcovered umbilicated, rather thin, striulate, bluish gray, spire becoming brownish purple towards the apex; whorls 4½, the last inflated, lightly malleated, a little descending in front, compressed round the umbilicus; aperture brownish purple, shining, peristome shortly reflected, rubicund, with a darker parietal callus connecting its margins. Diam. 27 mill.

*Cape of Good Hope.*

*H. lucana.* Lam. (not Müll.) and *H. rosacea*, Jonas are synonyms.

H. LUCANA, Müller. Pl. 49, fig. 2.

Umbilicated, subpellucid, shining, brownish yellow above, suture and base white; whorls 5, the upper ones planulate, the last large, convex, peristome thick, reflected, margins callously joined. Diam. 30 mill.

*Cape of Good Hope.*

*H. lucena*, Gmelin is a synonym.

H. BULBUS, Menke. Pl. 49, figs. 10–12.

Moderately umbilicated, thin, irregularly rugosely striate, with a few impressed spiral lines, white; whorls 4½, oliquely flattened, the last scarcely descending, periphery rounded, base convex; peristome simple, subreflected below, thickened within. Diam. 26 mill.

*Cape of Good Hope.*

H. ALEXANDRI, Gray. Pl. 49, fig. 6.

Rimately perforate, light fulvous or whitish, minutely costulate-striate above, smooth below; whorls 5, convex, the last inflated, suddenly deflected in front, base deviating, forming the rimate umbilicus; aperture subcircular, peristome continuous, expanded and reflected. Diam. 32 mill.

*Damara*, Africa.

H. VOTIVA, Crosse. Pl. 49, figs. 4, 5.

Narrowly umbilicated, subtranslucent, a little shining, thinly, subobliquely striate, yellowish straw color, with two dark chestnut bands on the penultimate, three on the last whorl; whorls 4, rather flattened, the last anteriorly descending, scarcely angulated at the periphery; aperture whitish, showing the bands, peristome white, the extremities closely approaching. Diam. 26 mill.

*Madagascar.*

H. CANESCENS, Ads. and Reeve. Pl. 50, figs. 39–41,

Subcovered perforate, somewhat solid, striate, obsoletely decussated, greyish white, with a median corneous-pellucid spiral line, or several interrupted lines and bands of maculations, apex corneous; whorls 5, the last gradually descending in front; aperture bluish, peristome acute, sublabiate within, columellar margin oblique, callously tuberculated. Diam. 20 mill.

*Africa.*

The rather indefinite locality has not been verified; the figure and description given by Reeve (fig. 41.) are suspiciously close to the Western American group to which belong *H. lævis, H. Veatchi* and *H. Pandoræ*; Küster's figures (figs. 39, 40) appear very different.

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*Australian Species.*

H. LÆSA, Reeve. Pl. 49, fig. 15.

Narrowly umbilicated, plicate-striate and minutely granulated, livid greenish, purple-tinted; whorls 5–6, convex, the last a little deflected in front; lip expanded, reflected, widely dilated at the umbilicus. Diam. 25 mill.

*Hunter River, Australia.*

H. EXPEDITIONIS, Cox. Pl. 49, fig. 19.

Umbilicated, thin, transparent, yellowish brown, shining, rudely striated; whorls 5½–6, the last large, inflated, descending in front; aperture pale violaceous, peristome simple, white. Diam. 26 mill.

*Tropical Australia.*

H. FUNICULATA, Pfr. Pl. 49, fig. 16.

Moderately umbilicated, thin, rugosely granulated, a little shining, chestnut color, with a peripheral white band, suture subchan-

neled; whorls 6, slowly increasing, the last angulated, descending in front, base convex, subcompressed around the umbilicus; lip simple, shortly reflected below. Diam. 29 mill.

*Torres Sts., Australia.*

H. PLECTILIS, Benson. Pl. 49, figs. 18, 17.

Subcovered perforate, brownish white, opaque, with strong angularly flexuous, oblique rugosities, becoming smoother below; whorls 4, the last deflected in front, periphery obtusely angulated; aperture subcircular, peristome expanded, a little reflected, margins approaching and connected by a parietal callus, columellar lip expanded, more or less covering the umbilicus. Diam. 14·5 mill.

*Shark's Bay, W. Australia.*

*H. paleata*, Reeve (fig. 17), is a synonym.

H. TORULUS, Fer.

Subperforate, globular, white, smooth, with a chestnut band; whorls 6, convex, narrow, base inflated; aperture rather small, rounded-lunar, lip simple, white, upper margin subexpanded, basal dilated, reflected, partly covering the umbilicus.

Diam. 15 mill.

*Australia.*

H. DURALENSIS, Cox. Pl. 50, figs. 20, 21.

Umbilicated, a little solid, rudely costate, especially at the suture, and very minutely granulated, dark chestnut color or yellowish, paler below; whorls 5, the last carinated, a little descending in front; aperture pale rosy, lip slightly reflected. Diam. 20 mill.

*Dural, New South Wales.*

H. DUNKIENSIS, Forbes. Pl. 50, figs. 23, 22, 24.

Moderately umbilicated, striated and minutely granulated, light fulvous; whorls 5½, slowly increasing, rugulose at the suture, last whorl not descending, periphery subangulated, base inflated, subcompressed round the umbilicus; lip white, shortly expanded.

Diam. 25 mill.

*Dunk Isl. N. Australia.*

Forbes' figure (fig. 22) represents a young shell.

H. PRUNUM, Fer. Pl. 50, figs. 25, 26.

Umbilicated, fulvous or chestnut color, sometimes with a dark chestnut peripheral line, obliquely striate and obsoletely granular;

whorls 6, the last inflated, a little descending in front; aperture reddish, shining, lip white, shortly expanded. Diam. 30 mill.

*Australia.*

*H. argillacea,* Gray and *H. pelodes,* Pfr. are synonyms.

H. Cailleti, Crosse. Pl. 50, figs. 27, 28.

Scarcely rimate, rather thick, rugulosely striate and very thinly subgranose, dark chestnut color; whorls 6, convex, the last inflated, obscurely angulated, descending in front, subcompressed round the umbilical region; aperture pale violaceous, peristome same color, shortly expanded and reflected. Diam. 32 mill.

? *Oceanica.*

The particular locality is unknown.

Var. β. Paler, greenish yellow, thinner, peristome whitish.

Diam. 28 mill.

H. Mabillei, Crosse. Pl. 50, fig. 29.

Narrowly umbilicated, rather thin, pellucid, rugosely striate, light brownish; whorls 5, convex, the last inflated, subangulated, descending in front, shining and greenish yellow on the base, subcompressed around the umbilicus; aperture bluish, peristome white, dilated above, margins joined by a shining callus. Diam. 24 mill.

*? Oceanica.*

Var. β. Peristome violaceous, scarcely impinging on the umbilicus, surrounded with chestnut color.

Possibly this is identical with the preceding species.

H. Coxeni, Cox. Pl. 50, fig. 30.

Moderately umbilicated, rather thin, translucent, yellowish brown, with undulating irregular striæ and subrecurved hairs; whorls 5½, the last rapidly increasing, inflated, a little descending in front; lip expanded, its extremities joined by a thin callus.

Diam. 24 mill.

*Whitsunday Isl. Queensland, Australia.*

H. pliculosa, Pfr. Pl. 50, fig. 31.

Narrowly umbilicated, rather thin, closely plicate-striate above, diaphanous, a little shining, reddish corneous; whorls 4½, periphery subangulate, rounded and scarcely descending in front, base inflated, subcompressed around the umbilicus; peristome whitish, a little expanded. Diam. 16 mill.

*"Drayton Range," N. Australia.*

H. ARIDORUM, Cox. Pl. 50, figs. 34, 35.

Narrowly umbilicated, somewhat solid, a little shining, rugosely striate, very lightly granular, smoother below, greenish corneous; whorls 4½, the last large, tumid; lip thin, shortly reflected, partly covering the umbilicus. Diam. 14 mill.

*Clarence River, Australia.*

H. LUTACEA, Pfr. Pl. 50, figs. 32, 33.

Narrowly umbilicated, solid, striulate, decussated by very close spiral striæ, a little shining, brownish yellow; whorls 4½, moderately increasing, the last very obsoletely angulated, scarcely descending in front; peristome strongly white-lipped, expanded, reflected below. Diam. 23 mill.

*Habitat unknown.*

H. BREVIPILA, Pfr. Pl. 50, figs. 34–36.

Widely umbilicated, with short rigid hairs, in quincunx order, not shining, dark brownish; whorls scarcely 5, a little convex, the last rounded, subdeflected in front, angularly compressed around the umbilicus; aperture shining, lip thin, chestnut color, shortly expanded, margins approaching. Diam. 18 mill.

*Cape York.*

Originally described from a young specimen (fig. 36).

*Unfigured and doubtful species of Dorcasia.*

H. ASSIMILARIS, H. FUCHSI, and H. MILIARIA, Gredler. *China.*
H. OCCULTA, Pfr. *Ins. Aru.*
H. CERINA, Mor. *Madagascar.*
H. LIVERPOOLENSIS, Brazier. *New South Wales.*
H. CARCHARIAS, Pfr. *Shark's Bay, Australia.*
H. BLACKALLI, H. BENNETTI, Brazier. *Queensland, Australia.*
H. MURINA, Pfr. *Admiralty Islands, N. Australia.*
H. ORPHANA, Heude. *China.*

It is hard to determine whether this is one of the *Zonitidæ* or an ungrown *Dorcasia.*

Subsection X, SATSUMA. A. Ad. 1868.

H. PAPILLIFORMIS, Kobelt. Pl. 51, fig. 47.

Scarcely rimate, thin, irregularly striulate, glimmering, greyish yellow, with a peripheral chestnut line; whorls 6, the last slightly descending at the suture; peristome simple, a little expanded, almost entirely covering the umbilicus. Diam. 23, alt. 27 mill.

*Ins. Nippon, Japan.*

H. Largillierti Phil. Pl., 50, figs. 45, 46.

Perforate, thin, smoothish, diaphanous, whitish, whorls 5½, the last with obsoletely angulated periphery; peristome simple, right margin shortly expanded, basal a little thickened, sometimes with a peripheral chestnut band, showing in the suture.

Diam. 22 mill.

*Loo Choo Is.*

*H. immaculata*, Ads. and Reeve is a synonym.

H. Japonica, Pfr. Pl. 51, figs. 48–51, 52.

Narrowly umbilicated, thin, striate, corneous yellow, with a light-margined pale chestnut peripheral line; whorls 5½, the last with carinated periphery, scarcely descending in front; peristome thin, shortly expanded, callously thickened on the middle of the basal margin. Diam. 18 mill.

*Japan.*

*H. vitracea*, Fer. is possibly identical.

H. albida, A. Adams. Pl. 51, fig. 53.

Subcovered perforate, thin, lightly obliquely striate, and spirally, very thinly striulate, whitish; whorls 6, subplanate, the last carinated, not descending in front, a little constricted behind the aperture; peristome thin, expanded, dextral margin flexuous.

Diam. 14 mill.

*Taiwan, Formosa.*

H. conospira, Pfr. Pl. 51, figs. 54, 55.

Moderately umbilicated, rather thin, striulate, a little shining, light corneous; whorls 5½–6, the last rounded, scarcely descending; peristome thin, whitish, a little expanded. Diam. 7·5–8·5 mill.

*Japan.*

H. Tabuensis, Ancey. Pl. 51, figs. 60–62.

Narrowly umbilicated, obliquely striate, decussated by close, fine spiral striæ, yellowish corneous, usually with a pale peripheral band; whorls 7, the last with obtusely angulated periphery, and flattened base; peristome expanded, reflected. Diam. 16 mill.

*Tabu-Sima, Japan.*

*H. patruelis*, H. Ad., (not Angas) is a synonym.

H. sphinctostoma, A. Adams. Pl. 51, figs. 64–67.

Narrowly perforate, obliquely striate, yellowish corneous, sometimes with a peripheral band; whorls 6, the last rounded, con-

stricted at the aperture; peristome white-lipped, expanded and reflected. Diam. 12 mill.

*Tago, Japan.*

H. CARDIOSTOMA, Kobelt. Pl. 51, figs. 56, 57.

Imperforate, thin, obliquely striulate, with spiral lines, yellowish corneous; whorls 5, the last a little flattened; slightly descending, rounded at the periphery, constricted at the aperture; peristome slightly thickened, scarcely expanded. Diam. 14·5 mill.

*Kioto, Japan.*

H. HILGENDORFFI, Kobelt. Pl. 65, figs. 58, 59.

Moderately umbilicated, thin, striulate, corneous, sometimes white zoned at the periphery; whorls 6, the last a little descending in front; peristome subexpanded, shortly reflected.

Diam. 15 mill.

*Japan.*

H. VERRUCOSA, Reinh. Pl. 51, figs. 69–71.

Narrowly perforate, obliquely striate, granular, greyish brown; whorls 5½, the last obtusely angulated, base convex; peristome acute, margins joined by a thin callus. Diam. 5·5 mill.

*Near Yeddo, Japan.*

H. MACROCYCLOIDES, Kobelt. Pl. 51, figs. 72, 73.

Rather widely umbilicated, thin, lightly striulate, corneous white, suture deep; whorls 6, narrow, slowly enlarging, the last subinflated, a little deflected in front; peristome white-lipped, expanded. Diam. 17 mill.

*Japan.*

H. GOODWINI, Smith. Pl. 51, figs. 76, 77.

Narrowly umbilicated, thin, light corneous, translucent, with thin incremental striæ, and nearly obsolete, minute spiral striæ; whorls 5½–6, the last subangulated, a little descending in front; peristome thin, slightly expanded, Diam. 11·5 mill.

*Japan.*

H. CONULINA. Mart. Pl. 51, figs. 74, 75.

Perforate, brownish corneous, thin, striulate, yellowish white; whorls 5, the last obtusely angulated and deflected in front; peristome thin, sublabiate below, scarcely reflected. Diam. 7 mill.

*Japan.*

H. Lischkeana, Kobelt. Pl. 51, figs. 78, 79.

Perforate, thin, subpellucid, thinly obliquely striulate, slightly, very minutely granular, horny white, with a chestnut band; whorls 5, the last subcompressed but not angulated, descending in front; peristome thin, slightly labiate within. Diam. 10 mill.

*Japan.*

H. callizona, Crosse. Pl. 51, fig. 63.

Narrowly umbilicated, subarcuately striate, irregularly subrugose, with numerous, close, decussating spiral lines, yellowish white, with a subbasal chestnut band, suture rather irregular, impressed; whorls 5½, the last scarcely descending, the periphery obsoletely angulated; aperture white, showing the basal zone, simple, a little thickened within. Diam. 22 mill.

*Japan.*

H. fulvicans, H. Adams. Pl. 51, fig. 68.

Umbilicated, somewhat thin, lightly striate, decussated by very thin spiral liræ, shortly pilose, light fulvous; whorls 6½, the last rather acutely carinated, descending in front, base more convex; peristome thin, expanded, subsinuous below. Diam. 11 mill.

*Tamsui, Formosa.*

H. Coreanica, Ads. and Reeve. Pl. 52, figs. 83–85.

Narrowly umbilicated, somewhat solid, irregularly rugosely striate, reddish corneous, bifasciate with white above; whorls 5½, the last dilated and rounded, scarcely descending in front; aperture shining, peristome simple, acute, rosy lipped within.

Diam. 19 mill.

*Corea.*

H. leprosula, Heude. Pl. 51, figs. 80–82.

Moderately umbilicated, solid, color? (denuded of epidermis), whorls 5, rather narrow, the last obscurely angulated, descending at the aperture, peristome expanded, acute, thickened within.

Diam. 26 mill.

*China.*

H. improvisa, Heude. Pl. 52, fig. 88.

Narrowly umbilicated, brownish, with three bands, the middle one dark, the others light, darker around the umbilicus; whorls 5, the last obsoletely angulated, rugulosely striate; peristome expanded, acute. Diam. 20 mill.

*Tchenkeou, China.*

H. LATRUNCULORUM, Heude. Pl. 52, fig. 86.

Narrowly umbilicated, rugulosely spirally striate, fulvous; whorls 5, the last obscurely angulated, inflated below. Diam. 20 mill.

*Tchenkeou, China.*

H. PLETHORICA, Crosse. Pl. 52, fig. 87.

Narrowly umbilicated, rather thin, diaphanous, striate-costulate, yellowish straw-color; whorls 5, the last with obsoletely angulated periphery; aperture whitish, peristome simple, white.

Diam. 14·5 mill.

*Hab. unknown.*

H. BREVIBARBIS, Pfr. Pl. 52, figs. 92, 93, 1.

Narrowly umbilicated, rather thin, diaphanous, corneous white, with a peripheral chestnut line, irregularly striate, subdecussated by close spiral lines; whorls 6½, the last not descending, with carinated periphery bearing short bristles, base more convex; lip white, expanded above, reflected below. Diam. 14 mill.

*Northern China.*

H. THORACICA, Heude. Pl. 52, figs. 94–96.

Narrowly umbilicated, thin, fragile, with thin longitudinal series of minute scales, brownish fulvous; whorls 7, subplanulate, slowly increasing, the last slightly descending in front, convex below; peristome simple, slightly expanded, white.

Diam. 16 mill.

*Kiuntcheou, China.*

H. SQUAMOSELLA, Heude. Pl. 52, figs. 98–100.

Moderately umbilicated, thin, fragile, squamose in spiral lines; whorls 6½, the last not descending, acutely angulated, angle vanishing towards the aperture; peristome scarcely thickened, slightly deflected. Diam. 11 mill.

*Nanking, China.*

H. MICACEA, Heude. Pl. 52, figs. 5–7.

Narrowly umbilicated, thin, fragile, diaphanous, obliquely striulate, whitish; whorls 6, slowly increasing, the last obtusely angulated, subplane around the umbilicus, a little deflected in front; peristome thin, slightly reflected. Diam. 11 mill.

*Nganking, China.*

H. PHYLLOPHAGA, Heude. Pl. 52, figs. 8–10.

Perforate, striulate, with caducous short hairs, fulvous; whorls 5, with deep suture, and slowly increasing, the last obtusely angulated,

not deflected in front, convex below; peristome simple, a little thickened. Diam. 6 mill.

*Nanking, China.*

H. DORMITANS, Heude. Pl. 52, figs. 11–13.

Perforate, pellucid, striulate, with short, caducous hairs; whorls 5, narrow, slowly increasing, the last obtusely angulated, not descending at the aperture, base convex; peristome sub-simple.

Diam. 6 mill.

*L. Hongtse, China.*

H. ARBUSTICOLA, Deshayes. Pl. 50, figs. 42, 43.

Moderately umbilicated, irregularly striate, striæ stronger at the suture, light chestnut color, with obscure whitish strigæ and maculations; whorls 6, narrow, the last a little deflected in front; aperture white, margin thin, slightly expanded above, more strongly below.

Diam. 24 mill.

*Moupin, Eastern Thibet.*

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H. BULIMINOIDES, Heude. Pl. 52, figs. 18, 19.

H. PSEUDOBULIMINUS, Heude. Pl. 52, figs. 16, 17.

H. BULIMINUS, Heude. Pl. 52, fig. 20.

H. TAIVANICA, Möllend. Pl. 52, fig. 21.

Distinguished conchologists have placed these Chinese species in the present group, but after having figured them, I concluded that they belonged, the first two, more probably to *Turricula*, the last two to *Cochlicella*; they will consequently be described in the next volume.

*Unfigured species*

H. PECULIARIS, H. GIBBOSA, and H. SEROTINA, A. Ad. *Japan.*

H. SPHÆRULATA, Reinh. *Japan.*

H. GRADATA, Möllend. *Corea.*

H. EUMENES, Westerl. *Japan.*

H. SCHOMBURGIANA, Moll. (=*H. trochulus*, Moll. not Ads.) *China.*

H. BIZONA, and H. SQUAMULINA, Gredler. *China.*

Subsection XI, HISPIDELLA, Lowe. 1852.

H. HORRIPILA, Morelet and Drouet, Pl. 52, figs. 22–24.

Narrowly perforate, thin subdiaphanous, closely, very minutely striate, decussated by spiral lines, with short, erect, decurrent hairs,

reddish brown, with a yellowish band; whorls 5½, the last obtusely angulated; lip simple, thin. Diam. 9 mill.

*Azores.*

H. ARMITAGEANA, Lowe. Pl. 52, fig. 25.

Narrowly perforate, thin, rugulose, shortly pilose, pellucid, olivaceous corneous, with one or two obsolete darker bands; whorls 4½, the last not descending, periphery subangulated, base a little more convex; peristome a little expanded, sublabiate within.

Diam. 7·5 mill.

*Madeira.*

H. PAVIDA, Mousson. Pl. 53, figs. 28, 29.

Moderately umbilicated, rather thin, subpellucid, corneous to brownish black, maculated or punctulated with opaque yellow; whorls 4; peristome simple, thin, acute. Diam. 5 mill.

*Ins. Teneriffe, Palma.*

*H. nubigena*, Lowe is a synonym.

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H. DEFLORATA, Lowe, Unfigured. *Madeira.*

Subsection XII, CILIELLA, Mousson. 1872.

H. LEPROSA, Shuttlew. Pl. 53, figs. 33–35.

Sub-covered perforate, thin, obliquely costulate-striate, with minute granules or very fugacious membranaceous scales, reddish corneous; whorls 5, the last a little descending, with obtusely angulated periphery; peristome slightly expanded and reflected.

Diam. 8 mill.

*Ins. Teneriffe.*

H. LANOSA, Mousson. Pl. 53, figs. 30–32.

Very narrowly perforate, rather thin, obliquely plicate-striate, not granular or rugulose, closely pilose, pellucid, corneous brown; whorls 5, the last slightly descending anteriorly, periphery rounded angular, base rounded, smoothish, without hairs; peristome simple, shortly expanded, white, basal portion reflected.

Diam. 9·5 mill.

*Canary Is.*

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Section II, XERÒPHILA, Held. 1837.

Subsection I, EUPARYPHA, Hartmann. 1840.

H. SEETZENI, Koch. Pl. 53, figs. 26, 27.

Very narrowly perforate, rather solid, striate, chalky white;

whorls 5½, the last ventricose, a little descending; aperture white, peristome acute, lipped within. Diam. 19·5 mill.

*Syria.*

Occasionally banded. *H. Sabæa*, Boiss. is a synonym.

H. Pisana, Müll. Pl. 53, figs. 36–40; 41, 42.

Narrowly perforate, thin, somewhat shining, striulate, very lightly spirally lineate, yellowish white, variously lineate and banded continuously or interruptedly with chestnut; whorls 5, the last slightly descending in front, rounded; peristome acute, rosy lipped within. Diam. 18 mill.

*Mediterranean Region, Canary Is., Madeira.*

The synonyms of this common, beautiful species are *H. cingenda*, Montf.; *H. zonaria*, Penn., *H. rhodostoma*, Drap., *H. petholata*, Ol., *H. Damascena*, Parr., *H. albina*, Ziegl., and *H. lineolata*, *H. Silis*, *H. Eridana* and *H. Porrina*, Chiereg. *H. leucas*, Linn., is believed to be a juvenile of this species, and *H. Pisanopsis*, Orb., said to be Cuban, but not found there, is probably another.

Var. Alboranensis, Webb and Berth. Figs. 41, 42.

Smaller, more globose, perforation minute but distinct, unicolored or with numerous lines, or marbled.

*Canary Is.*

Var. anonyma, Westerl. *Civita Vecchia.*

Var. Sardoa, Zglr.

Smaller, umbilicus nearly closed, with continuous and interrupted bands. Diam. 12–13 mill.

*Sardinia.*

Var. geminata, Mouss.

Imperforate, or nearly so, somewhat solid, subcalcareous, not shining, with acute striæ, crossed by distant spiral lines, whitish with continuous, or radiatingly interrupted or punctate spiral reddish or violet-grey lines. Diam. 20 mill.

*Canary Is.*

H. MacAndrewiana, Pfr. Pl. 53, fig. 43.

Imperforate, rather solid, decussated by incremental, and closer spiral striæ, light rosy, with dark spiral lines; whorls 4, the last inflated, scarcely descending in front, base rosy, unicolored; aperture wine colored, columella purplish, peristome simple.

Diam. 17 mill.

*Salvage Isl.*, near *Madeira.*

*H. ustulata*, Lowe is a synonym.

H. GRASSETI, Tarnier. Pl. 53, figs. 44, 45.

Subcovered perforate, striate, decussated, whitish with greyish brown continuous or interrupted lines; whorls 4½, the last not descending in front, periphery obtusely angulated, base more convex; aperture greyish, peristome simple, acute, with a slight whitish interior callus. Diam. 16 mill.

*Ins. Grand Canary.*

*H. planata*, Webb and Berth. is a synonym. It is probably, like its predecessors, only a variety of *H. Pisana*,

H. PISANOPSIS, Servain. Pl. 53, figs. 49, 50.

The work in which this species is described is not accessible to me; the figures refer to the variety.

*Portugal.*

Var. AEGUSA, Kobelt.

Very narrowly perforate, solid, chalky, white or variously continuously or interruptedly banded with chestnut; whorls 6, slowly increasing, the last inflated, scarcely descending in front; aperture purplish, showing the bands, peristome reddish, with orange lip.

Diam. 18 mill.

*Western Sicily.*

H. HIEROPHANTA, Mabille. Pl. 53, figs. 46, 47.

Subimperforate, solid, opaque, dull striate, yellowish white, with dark chocolate lines in spiral and radiating series, and spiral bands, apex chocolate; whorls 4½–5, rapidly enlarging, the last large, rounded angular, not descending, convex below; peristome acute, remotely labiate within. Diam. 16 mill.

*Ins. Teneriffe.*

Belongs to the group of *H. Pisana*, but is more globose.

H. DECORATA, Pfr. Pl. 53, figs. 51, 52.

Subperforate, thin, striulate, whitish, with interrupted chestnut lines, sometimes confluent; whorls 4½, convex, the last descending; aperture brownish, peristome scarcely lipped within, columellar margin membranaceous, dilated, strongly reflected.

Diam. 18 mill.

*Hab. unknown.*

H. DEHNEI, Rossm. Pl. 53, figs. 58–61.

Imperforate, somewhat solid, slightly decussated, whitish, rosy or yellowish, generally with one or two, or several continuous yellow-

ish brown bands, the upper one usually widest, sometimes the bands are obsolete; whorls 5, the last descending anteriorly, the periphery obtusely angulated and base inflated; aperture rosy, peristome simple, dilated, red-lipped within, columella dilated, reflected-appressed. Diam. 18 mill.

*Western Morocco.*

*H. epiglottidea*, Beck is a synonym.

Var. ERYTHRONIXIA, Bourg. *Morocco.*

H. IMPUGNATA, Mousson. Pl. 53, figs. 53, 54.

Subcovered perforate, rugulosely striate, decussated by slighter spiral lines, opaque, whitish, with numerous spiral, continuous or interrupted brownish grey or brownish lines and dots, suture superficial, thread-margined above; whorls 5, the last not descending, periphery somewhat serrulate-carinate; peristome simple, widely, thinly lipped within. Diam. 12 mill.

*Ins. Lanzarote, Canaries.*

*H. festiva*, Lowe, Mss. belongs here.

Var. SUBGEMINATA, Mousson.

Whorls rounded-angular, striæ a little scabrous, with a few wide spiral sulci.

H. PLANATA, Chemn. Pl. 54, figs. 62, 63; Pl. 53, figs. 55–57.

Scarcely perforate, somewhat solid, closely undulately striate, lightly decussated, whitish, unicolored or variously banded with chestnut, bands sometimes interrupted; whorls 4½, the last acutely carinated, not descending in front, base turgid; aperture whitish, peristome acute, lipped within. Diam. 20 mill.

*North Africa, Spain, Canaries.*

*H. helicella*, Wood, *H. calliostoma*, Ad. and Reeve, and *H. arietina*, Rossm. are synonyms.

Var. ERYTHROSTOMA, Phil. Figs. 55–57.

Aperture flesh-red, carina not much compressed, lower.

H. SUBDENTATA, Fer. Pl. 54, figs. 74–76.

Covered perforate, solid, striulate, very minutely decussated, white, often with numerous brown spiral lines; whorls 5, the last rounded, descending in front, base convex; aperture rosy, parietal

wall unidentate, peristome simple, expanded, strongly labiate within, margins joined by a brownish callus. Diam. 19 mill.

*Persia?*

*H. subcarinata,* Menke and *H. Cinæ,* Klett are synonyms; the latter a juvenile.

H. CALOPSIS, Bourg. Pl. 54, figs. 66–68.

Moderately umbilicated, solid, subopaque, shining, striate, whitish, with 10 unequal chocolate bands, variegated with white, two superior and eight inferior; whorls 6, subplanulate, carinate, carina following the suture, rapidly increasing, the last dilated, turgid below; peristome acute, white lipped within.

Diam. 17 mill.

*Algiers.*

H. PISANIFORMIS, Bourg. Pl. 54, figs. 64, 65.

Subglobose, strongly striate; whorls rounded, the last much deflected at the aperture, with three chestnut bands, of which the lower one is narrow; aperture obliquely oval, peristome simple, thickened within. Diam. 19 mill.

*Pays Comalis, E. Africa.*

I am inclined to believe the following three species only forms of the above; at least, the four reveal a common ancestry.

H. COMALIANA, Bourg. Pl. 54, figs. 69–71.

Narrowly perforate, depressed above, convex below, subopaque, rather solid, striulate, and submalleate towards the aperture, white, with three chestnut zones; whorls 4, rapidly increasing, the last large; peristome slightly expanded, labiate within.

Diam. 17 mill.

*Pays Comalis, E. Africa.*

H. TIANI, (Revoil) Bourg. Pl. 54, figs. 72, 73.

Narrowly perforate, convex above, more convex below, subopaque, rather solid, strongly sharply striate and obscurely malleate; whitish, or with 3 or 4 chestnut zones; whorls 4½, the last large, rounded, descending in front; peristome a little expanded, thickened within, aperture yellowish. Diam. 18 mill.

*Pays Comalis, E. Africa.*

H. TOHENICA, Bourg. Pl. 54, figs. 77–79.

Scarcely rimate, equally convex above and below, solid, opaque, ponderous, striulate, somewhat submalleate, white, with three chest-

nut bands; whorls 5, convex, rapidly enlarging, the last large, subventricose, slightly descending, base angulated round the umbilicus, peristome thickened, obtuse, a little expanded.

Diam. 21 mill.

*Pays Comalis, E. Africa.*

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H. AREOLATA, Sowb. Pl. 54, fig. 80.

Perforate, striate, a little shining, whitish, variously ornamented with interrupted spiral lines; whorls 5, the last scarcely descending; aperture light brownish, peristome acute, sublabiate within, columellar margin dentately thickened.

Diam. 26 mill.

*Lower Califoania.*

H. PANDORÆ, Forbes. Pl. 54, figs. 85, 86.

Subcovered perforate, rather thin, rugulose, very minutely concentrically striated, violet brown above, sometimes with chestnut bands, whitish or ash color below; whorls 5, the last inflated, scarcely descending in front; peristome scarcely expanding, sublabiate within. Diam. 19 mill.

*Lower California.*

*H. damascenus*, Gould is a synonym.

H. LEVIS, Pfr. Pl. 54, figs. 81–83.

Perforate, thin, smooth, obliquely striate, obsoletely granulated, whitish, with serial spots or bands of pellucid corneous; whorls 5, the last inflated; aperture whitish or fulvous, peristome acute, sublabiate within, columellar margin dilated above, strongly reflected, often dentate. Diam. 16 mill.

*Lower California.*

Fig. 81 is a copy of a figure given by Mr. W. G. Binney as representing a varicty of *H. areolata*; it appears to me to be a form of *H. levis.*

H. VEATCHII, Newcomb. Pl. 54, fig. 84.

Subcovered perforate, rather thin, obliquely striate, slightly spirally corrugated, yellowish white, with numerous, interrupted chestnut bands; whorls 6, the last rather large, declining towards the aperture; lip a little expanded, slightly thickened within, columellar margin often subdentate. Diam. 23 mill.

*Lower California.*

H. TRYONI. Newcomb. Pl. 54, fig. 87.

Narrowly umbilicated, solid, thick, with incremental and spiral striæ, violet-ash color above, yellowish white or brownish white below; whorls 6, the last descending; peristome scarcely expanded, callous within, columella callous, obsoletely unidentate.

Diam. 1 in.

*Sta. Barbara, and San Nicolas Is. California.*

*Unfigured species of Euparypha.*

H. MENTONENSIS, Sidebotham. (Between *H. Pisana and H. virgata.*) *Mentone.*
H. NAUDIERI, Bourg. *France.*
H. EUSARCA, Ancey. *So. Italy.*
H. EUSARCOMÆA, Ancey. *Minorca.*
H. AMBUSTA, Ancey. *Algiers.*
H. PISANELLA, Mabille. *Canary Is.*
H. ANTONIANA, Rochebrune. *St. Antoine, France.*
H. OERTZENI, H. HIERAPETRANA, Maltzan. *Crete.*
H. DOUMETI, H. STEREOLENA, H. ADISANA, Bourg. *Tunis.*
H. OCCONELLA, H. CLOSSURA, H. ELITHIA, H. ARBANA, H. IONSTOMA, H. IANTHINOSTOMA, H. AMETHYSTA, H. DJERBANICA, H. ZITANENSIS, H. SALEMENSIS, H. GERGISENSIS, H. CARPIENSIS, H. HAMADANICA, H. ENICA, and H, IDIA, Letourn. et Bourg. *Tunis.*
H. CHAMBARDI, Letourn. *Italy, Istria, Egypt, Tunis.*
H. SUBPISANA, Bourg. *Tunis, Spain, Istria.*
H. LENOLEUCA, Bourg. *Egypt, Syria.*
H. AGAROI, H. OLIVARESI, Servain. *Spain.*
H. DERMOI, Servain. *Spain, Morocco, Tunis.*
H, BYRSÆ, H. RADESIANA, Marès. *Tunis.*
H. LEVESQUEI, Berthier. *Algiers, Tunis.*
H. COUTURIERI, Bourg. *Algiers.*
H. THINOPHILA, Bourg. *Egypt.*
H. DONATII, Berthier. *Italy, Spain, Tunis, Syria.*
H. CUTTATI, Bourg. *Spain, Provence, Istria.*
H. MOUROI, Servain. *Spain, Provence.*
H. PISANELLA, Servain. *Spain, Provence, Algiers, Tunis.*

Most of the above names appear to characterize individual rather than specific differences; whether the minute subdivisions instituted by the "new French school" of Conchologists will eventually win their way to general acceptance, is very doubtful.

Subsection II, HELIOMANES. Moquin-Tandon, 1855.

H. VARIABILIS, Drap. Pl. 54, figs. 88–92; Pl. 55, figs. 93–95, 2.

Moderately umbilicated, striate, smooth, whitish or yellowish, unicolored or variously ornamented with interrupted chestnut bands; whorls 5–6, the last slightly descending in front; aperture often brownish white, peristome acute, brown lipped within.

Diam. 12–19 mill.

*Europe.*

The synonyms are numerous: *H. striata*, Brard, *H. zonaria*, Don. *H. subalbida*, Poir. *H. obsoleta*, and *H. maculosa*, Ziegl., *H. monilifera*, Menke, *H. Burdigalensis*, Grat., *H. elegans*, Brown?, *H. disjuncta*, Turton? *H. Istriensis*, Ziegl. *H. virgata*, Montg. (Fig. 2.), and var. *subalbida*, Poiret.

Var. TURBINATA, Cafici. Pl. 55, fig. 95.

Shell with spire greatly elevated.

*Sicily.*

H. DANIELI, Bourg. Pl. 55, figs. 96–98.

Narrowly umbilicated, chalky, opaque, whitish, regularly costulate-striate; whorls 7, convex, regularly increasing; peristome simple, acute, white-lipped within. Diam. 10 mill.

*Brittany.*

H. EUPHORCA, Bourg. Pl. 55, figs. 99–1; Pl. 57, figs. 18–20.

Narrowly perforate, thin, white, chalky, irregularly substriate, obscurely malleate, apex black; whorls 6, slightly convex above, rapidly increasing, the last ventricosely rounded; peristome acute, white-lipped within. Diam. 19 mill.

*Algeria; Dep. Herault, France.*

H. JICKELII, Nevill. Pl. 55, figs. 3, 4.

Perforate, rather thin, irregularly striate, striæ, becoming rib-like about the suture; whitish, with chestnut bands, suture linear impressed; whorls 6, slowly enlarging, the last subinflated, obliquely dilated, slightly descending in front; peristome acute, with interior callus. Diam. 16 mill.

*Abyssinia.*

Is included by Ancey in his new group *Lejeania.*

H. HYDRUNTINA, Blanc. Pl. 55, figs. 5, 6.

Moderately umbilicated, thin, irregularly striate, chalky white,

without bands; whorls nearly 6, slowly enlarging, the last a little inflated, descending in front; peristome acute, labiate within.

Diam. 17 mill.

*Otranto.*

H. Euxina, Clessin. Pl. 55, figs. 7–9.

Narrowly umbilicated, rather solid, yellowish white, with interrupted chestnut bands, obsoletely, irregularly striulate; whorls 6, slowly increasing, rounded; peristome acute, rosy-lipped within.

Diam. 13 mill.

*Crimea.*

H. luteata, Parr. Pl. 55, figs. 10–13.

Narrowly umbilicated, somewhat solid, closely striate, yellowish or white, unicolored, or with continuous or interrupted fulvous or chestnut bands; whorls 5½, the last descending in front, dilated peristome simple, fulvous, thickened within. Diam. 16 mill.

*Portugal.*

H. accompsia, Bourg. Pl. 55, figs. 16, 17.

Narrowly umbilicated, solid, chalky, white, shining, nearly smooth, apex fulvous; whorls 7, a little convex, with impressed suture, last whorl dilated, rounded; peristome simple, acute, slightly margined within. Diam. 22 mill.

*Algiers, Tunis.*

H. Chalcidica, Blanc. Pl. 55, figs, 14, 15.

Narrowly umbilicated, rugosely striate, chalky white, with a few black dots, apex brownish black; whorls 6½, the penultimate protruding, the last descending in front, base somewhat flattened; peristome simple, obtuse, slightly rosy-lipped within. Diam. 16 mill.

*Chalcis, Eubœa.*

H. subrostrata, Fer. Pl. 55, figs. 18, 21.

Rather narrowly umbilicated, solid, closely, sharply striate, white, unicolored or narrowly banded, apex shining, corneous; whorls 6–6½, slowly increasing, the last not deflected anteriorly; peristome acute, labiate within. Diam. 18 mill.

*Spain, Algeria.*

H. choreta, Bourg. Pl. 55, figs. 22–26.

Moderately umbilicated, solid, chalky, white, with two interrupted zones of chocolate color, strongly striate on the last whorl, apex, black; whorls 6, convex, regularly increasing, the last rounded

descending at the aperture; peristome simple, acute, white-lipped within, columellar and basal margins slightly patulous.

Diam. 12 mill.

*Algiers.*

H. SIMULATA, Fer. Pl. 55, figs. 27–29.

Narrowly umbilicated, regularly costate-striate, whitish or greyish, with or without chestnut or chocolate, more or less interrupted bands; whorls 5; peristome acute, labiate within. Diam. 13 mill.

*Syria, Egypt.*

? *H. striatula*, Beck is a synonym.

H. CAMERATA, Mousson. Pl. 56, figs. 30, 31.

Perforate, rather thin, smoothish, lightly striate, whitish, marbled with yellowish brown or chestnut, with an interrupted dorsal band, and narrow indistinct ones on the base; whorls 6, slowly increasing, the last declining, obsoletely angular, with rounded base; peristome simple, widely but thinly labiate within. Diam. 15 mill.

*Mogador, Morocco.*

H. COLOMESIANA, Bourg. Pl. 56, figs. 32–34.

Rather narrowly umbilicated, solid, chalky, not shining, whitish, or with interrupted light chestnut zones, or with rare, obsolete variable maculations, costulate-striate, apex black; whorls 6, a little convex, slowly regularly increasing, with impressed suture, last whorl narrow, rounded, slightly deflected above; peristome acute, white-or yellowish-lipped within. Diam. 18 mill.

*Algiers.*

According to Morelet and others this is a synonym of *H. caperata*, var. *Mogadorensis*, Lowe, the latter having a carinated periphery which is supposed to indicate juvenility. I am not satisfied with this approximation. See *Journ. de Conch.* 35. 1880.

H. PELLUCENS, Shuttlew. Pl. 56, figs. 35, 36,

Perforate, thin, closely obliquely striate, diaphanous, fulvous, with darker more or less interrupted bands and lines; whorls 6, the last not descending, base ventricose; peristome acute, sublabiate within.

Diam. 12.7 mill.

*Corsica.*

H. PARVA, Parr. Pl. 56, figs. 37, 38.

Very narrowly umbilicated, striulate, a little shining, brownish yellow, apex corneous; whorls 5½, the last with a white subangulated periphery; peristome acute, labiate within. Diam. 9·6 mill.

*Sardinia.*

H. RUFOLABRIS, Benoit. Pl. 56, figs. 39, 40.

Very narrowly umbilicated, solid, irregularly striate, a little shining, white, apex blackish corneous; whorls 5, the last inflated, yellowish in front, not descending; peristome simple, strongly chestnut lipped within. Diam. 11 mill.

*Sicily.*

H. HAMILCARIS, Kobelt. Pl. 56, figs. 43–45.

Moderately umbilicated, somewhat solid, striulate, yellowish white, with dark brown bands, interrupted and confluent above, apex corneous; whorls 6, slowly increasing, the last subdilated, rounded, scarcely descending in front, somewhat flattened below; peristome acute, brown margined within, with a strong, bright orange callus. Diam. 14 mill.

*Mte. Pellegrino, Sicily.*

H. BENOITI, Cafici. Pl. 56, figs. 46–48.

Rather widely umbilicated, striulate, white or light yellowish, with continuous or interrupted chestnut bands, apex chestnut colored; whorls 6½, the last depressed above, dilated, descending in front; peristome simple, acute, white lipped within. Diam. 14–16 mill.

*Sicily.*

H. MOESTA, Parr. Pl. 56, figs. 49–51, 52–54.

Rather narrowly umbilicated, striulate, white, variously interruptedly fasciate with chocolate, apex corneous; whorls 6, slowly increasing, the last scarcely descending in front, base subplanate; peristome simple, acute, white-lipped within. Diam. 15 mill.

*Mt. Pellegrino, near Palermo, Sicily.*

Pfeiffer considered this a variety of *H. variabilis*; it appears to be sufficiently distinct.

Var. LUCTUOSA, Cafici, Figs. 52–54.

Shell more depressed, with less convex whorls, banding more interrupted, and narrower.

H. ARADASII, Pirajno. Pl. 56, figs. 58–60; 55–57.

Perforate, somewhat thin, striate, whitish or brownish, sometimes unicolored, mostly interruptedly and continuously multifasciate with chestnut; whorls 6, the last large, narrow, scarcely descending; peristome simple, acute, white or chestnut lipped within. Diam. 10·5 mill.

*Sicily.*

*H. filograna*, Villa may be referred to this species.

Var. SUBPROFUGA, Stabile. Figs. 55–57.

Perforate, subglobose, or depressed globose, regularly striate, last whorl large, tumid, obsoletely angulated; peristome thinly white-lipped. Diam. 9–9·5 mill.

*Piedmont, Naples.*

H. TURBINATA, Jan. Pl. 56, figs. 77, 78.

Perforate, somewhat solid, minutely striate, white, variegated by clouds and bands of chestnut; whorls 5½, the last inflated; peristome simple, labiate within. Diam. 11·5 mill.

*Syra, Crete.*

*H. cyclostomoides*, Porro and *H. pilula*, Mouss. are synonyms.

H. CANDIOTA, Frival. Pl. 56, Figs. 73, 74.

Narrowly perforate, thin, striulate, not shining, whitish, radiately strigated with chestnut, sometimes with a median spiral band; whorls 6, rather convex, the last rounded, subinflated, descending in front; peristome simple, acute, with one or two interior lips, visible through the shell. Diam. 10 mill.

*Candia, Syra.*

H. AGREABILIS, Ziegler. Pl. 56, figs. 71, 72.

Perforate, slightly striulate, almost smooth, shining, white, with narrow chestnut bands, apex black; whorls 6, slowly increasing, with impressed suture, last whorl dilated, rounded, slightly descending in front; peristome simple, white-lipped. Diam. 11 mill.

*Ins. Corfu.*

Often referred to the synonymy of *H. variabilis.*

H. ARCUATA, Ziegler. Pl. 56, figs. 81, 82.

Narrowly umbilicated, somewhat solid, lightly striate, shining, white, with distinct dark chestnut bands; whorls 5, the last subdilated, not descending in front; peristome simple, acute, strongly labiate within. Diam. 11 mill.

*Corfu.*

Is a very doubtful species: has been referred to *H. maritima.*

H. CYRENAICA, Martens. Pl. 56, figs. 63–66.

Perforate, rather thin, minutely rugosely striate, whitish, punctate or maculate with chestnut, rarely radiate, apex dark, last whorl more or less chestnut color with a few lighter strigations; whorls 4½–5, convex, the last inflated; peristome thin, acute, chestnut color, white-lipped within. Diam. 9 mill.

*Bengazi, in Barka, N. Africa.*

H. VARIEGATA, Frivaldszky. Pl. 56, figs. 75, 76.

Narrowly umbilicated, thin, striulate, white, with brownish strigæ and maculations, apex black; whorls 5½, scarcely convex, slowly increasing, the last a little dilated, subdepressed, not descending at the aperture; peristome acute, distinctly labiate within.

Diam. 11 mill.

*Epirus.*

Var. PUSTULOSA, Parr.

Thicker, smoother, light yellowish, the strigæ and maculations indistinct.

*Near Constantinople.*

H. MARITIMA, Drap. Pl. 56, figs. 67–70, 41, 42.

Narrowly umbilicated, somewhat solid, thinly striate, opaque, white, fasciate with chestnut or greyish, interrupted, maculated or punctate above, numerous and subcontinuous below; whorls 5½–6, narrow, the last descending a little at the aperture, convex below; peristome simple, acute, with a pink or chestnut interior callus.

Diam. 8–16 mill.

*France, Italy, Canary Is. etc.*

Is *H. lineata*, Olivi., *H. pseudenhalia*, Bourg. (figs. 41, 42), *H. Canariensis*, Shuttl. (= *simulata*, Webb and Berth. ?), and *H. herbicola*, Shuttl. (figs. 13, 14); the three latter Canarian.

H. LAUTA, Lowe. Pl. 56, figs. 61, 62.

Moderately umbilicated, rather thin, white, with obsolete or obscure narrow, interrupted, chestnut bands, a little shining, very closely striate; whorls 5, the last rounded, scarcely descending; peristome acute, labiate within.

Diam. 11–14 mill.

*France, Algiers, Greece.*

Erroneously referred by Lowe to Porto Sancto, Madeiran Archipelago. *H. submaritima*, Desm. is a synonym.

H. MAURITANICA, Bourg. Pl. 57, figs. 85–89.

Moderately umbilicated, solid, strongly striate, occasionally sublamellar, yellowish white, variously interruptedly zoned and maculated with chestnut; whorls 7, the last ventricose, rounded, a little descending in front; aperture white, peristome simple, acute, remotely white-lipped within. Diam. 20–25 mill.

*Algeria.*

H. Durieuri, Moquin Tandon. Pl. 56, figs. 79. 80.

Narrowly umbilicated, striulate, brownish white, faintly several banded, apex corneous; whorls 5, the last ventricose; aperture sublabiate within. Diam. 12 mill.

*Algeria.*

H. Berlieri, Morelet. Pl. 56, figs. 83, 84.

Perforate, somewhat solid, rugosely striate, variegated whitish and corneous; whorls 5, the last ventricose; peristome simple, labiate within. Diam. 12 mill.

*Algeria.*

*H. lacertarum*, Bourg, is possibly identical.

H. Djebbarica, Bourg. Pl. 57, figs. 90–92.

Perforate, solid, opaque, lightly but sharply costulate, chalky, whitish, with more or less fulvous radiating flames above, and four to six interrupted bands below; whorls 5½, the last obtusely carinate, (evanescent towards the aperture,) slightly descending in front; peristome simple, acute, red-lipped within. Diam. 10 mill.

*Near Oran, Algeria.*

H. modica, Morelet. Pl. 57, fig. 93.

Perforate, somewhat solid, obsoletely rugosely striate, whitish, unicolored or fasciate and rarely variegated with chestnut, apex blackish corneous; whorls 5–5½, exserted planulate, the last obtusely angulated and often thread-margined on the periphery; peristome acute, labiate within. Diam 7 mill.

*Algeria.*

H. Cottyi, Morelet. Pl. 57, figs. 96, 97.

Moderately umbilicated, irregularly costulate, white, interruptedly fasciate and towards the apex variegated with corneous; whorls 6, the last a little dilated; peristome acute, scarcely labiate within. Diam 11–15 mill.

*Morocco.*

H. cistorum, Morelet. Pl. 57, figs. 94, 95.

Narrowly umbilicated, rather thin, closely plicately striate, ashy corneous, marbled with whitish, with an interrupted chestnut zone on the periphery and others, continuous, on the base; whorls 6, somewhat flattened, turgid at the suture, the last depressed, not descending in front. periphery obsoletely angulated; peristome simple, acute, scarcely labiate within.

Diam 12 mill.

*Prov. Alemtejo, Portugal.*

H. Semenowi, Martens. Pl. 57, figs. 99–1, 2.

Narrowly umbilicated, solid, violaceous white, not banded; whorls 5, tumid, the last scarcely descending, narrow; peristome simple, obtuse, thickened within.

Diam. 10·5 mill.

*Thianschan Mts. Turkestan.*

Var. depressa, Mousson, (fig. 2.)

H. dendrophila, Mabille. Pl. 57, figs. 5, 6.

Narrowly umbilicated, rather solid, opaque, white or yellowish with chestnut bands, apex purple, surface very closely striated; whorls 6–6½, somewhat convex, rapidly increasing, with distinct suture, the last larger, obsoletely angulated; peristome acute, remotely lipped within. Diam. 10–14 mill.

*Grand Canary Is.*

H. aglaometa, Mabille. Pl. 57, figs. 15–17.

Perforate, solid, opaque, a little shining, irregularly densely striate, greyish brown, with subinterrupted dark bands and corneous maculations, apex yellowish; whorls 5–6, rapidly enlarging, the last dilated towards the aperture, not descending; peristome acute, slightly thickened within. Diam. 10 mill.

*Grand Canary I.*

H. Lancerottensis. Webb and Berth. Pl. 57, figs. 9–12.

Subcovered perforate, rather solid, striulate, white, with interrupted chestnut bands, apex blackish; whorls 6, the last inflated, scarcely descending anteriorly; peristome simple, labiate, sometimes bilabiate within. Diam. 7·75 mill.

*Ins. Lancerotte, Canaries.*

Vars. *Webbii* and *Bertheloti* are smaller, the former with narrower, the latter with wider umbilicus.

Var. adoptata, Mousson. Pl. 57, figs. 11, 12.

Narrowly umbilicated, somewhat thin, striulate, distinctly striate, fasciate and maculate with light corneous and white; whorls 4½, subtumid at the suture, the last not descending nor inflated, obsoletely angulated; peristome simple, acute.

Diam. 6·5 mill.

*Ins. Gomera, Canaries.*

H. Orbignyi, Webb and Berthelot. Pl. 57, fig. 98.

Narrowly umbilicated, thin, irregularly more or less rugosely or plicosely striate, whitish, clouded, maculated or fasciate with cor-

neous, epidermis fugacious, with oblique series of hairs in young specimens, suture deep, subincised; whorls 4½–5, the last not descending; peristome simple, acute.

Diam. 8 mill.

*Canary Islands.*

Wollaston considers this a variety of the preceding species. *H. Orotavana*, Tarnier is a synonym.

Var. MITIGATA, Mousson.

A little more globose, thin, last whorl subinflated, thinly striate, subcorneous, with a few striæ, and a whitish dorsal band, hairs distinct, peristome labiate within.

Var. CALCAREA, Mousson.

Smaller, somewhat solid, strongly striate, with a few corneous striæ above and spiral lines and zones beneath.

Diam. 6–6·5 mill.

*Unfigured species of Heliomanes.*

H. SALENTINA, Blanc. (*H. variabilis*, Terver, *H. lauta* (pars) Locard.) *France.*

H. SITIFIENSIS, H. JUSIANA, H. GRANNONENSIS, H. ASTATA, Bourg. *Algiers.*

H. MENDOZÆ, H. OGIACA, H. BLASI, H. MENDRANOI, Servain. *Tunis.*

H. AGNA, H. FŒDATA, H. ZERGUANA, Hagenmüller. *Tunis.*

H. DIDYMOPSIS, Fagot. *France.*

H. PHILOXERA, Cafici. *Sicily.*

H. COMBUSTA, H. PRÆVALENS, H. PETRÆA, H. BARIA, H. LAPIDOSA, H. CALCARINA, H. ARDENS, Ancey. *Algiers.*

H. UNGERI, Zelebor. *Asia Minor, Cyprus.*

H. PHTHIOTA, H. PASTORELLA, H. MESOSTOMA, Westerl. *Greece.*

H. ADEMATA, H. AVENIONENSIS, Bourg. *France.*

H. CASTROIANA, Servain. *France.*

H. TASSYANA, H. MABIDA, Fagot. *France.*

H. PROPRIA, Galland. *France.*

H. KABYLIANA, Debeaux. *Kabylæa.*

H. HELLENICA, Bourg. *Egypt.*

H, ALIBRANDI, H. ANXURINA, Rigacci. *Italy.*

H. PANURGA, H. AMOMA, H. MAHDURINA, H. MONEREA, H. CHIOIDEA, H. SPILMENTI, H. CATAROTA, H. CATAROTELLA, Bourg. *Tunis.*

H. EUPHORCELLA, Pechaud. *Tunis.*

H. ESNORCA, H. EUPHORCOPSIS, H. ETÆMA, H. NYA, H. LATASTEI. H. METICULOSA, H. LATASTEOPSIS, H. PHŒBEIA, H. CAUDEFACTA, Letourn. et Bourg. *Tunis.*

H. ASPILA, Bourg. *Algiers.*

H. ACOMPSELLA, Ancey. *Algiers.*

H. CORNARIA, Berthier. *Rhodes.*

H. HERACLEANA, Bourg. *Crete.*

H. ÆSTUOSA, Berthier. *Tunis.*

H. CANA, H. LEUCESTHA, H. CERTA, H. LEUCOPHORA, H. INGENUA, H. ACELA, H. EULABA, H. SITISIENSIS, H. ORETA, H. ANEPHELA, H. PEDIANA, H. CASSERTANA, H. FERA, H. HOLA, H. MISARA, H. DEXIA, H. NEFTANA, Bourg. *Tunis.*

H. FERIANICA, H. TACAPIACA, H. TABARKANA, H. UNA, H. TEBOURBANA, H. THERA, H. VAFELLA, H. PSAMMÆCELLA, H. PSAMMATHÆA, H. DILORICATA, Letourn. et Bourg. *Tunis.*

H. PEDIANOPSIS, H. VIVIDA, Hagenmüller. *Tunis.*

H. THERELLA, Berthier. *Tunis.*

H. TRITONIDES, Jus. *Tunis.*

H. PRIVATA, Galland. *Tunis.*

H. MICROMPHALUS, Letourn. *Tunis.*

The remarks made upon the unfigured species of the preceding group (p. 229) will apply equally well here. Besides the above, a number of species from other countries are incidentally referred to in Letourneux and Bourguignat's *Prodr. Mal. Tunisie*, the descriptions of many of which have not yet been published.

Subsection III, HELICELLA, Moquin Tandon. 1855.

H. CRETICA, Fer. Pl. 57, figs. 7, 8.

Moderately umbilicated, obliquely striulate, dirty white, with various interrupted chestnut bands; whorls 6, peristome acute, thinly labiate within. Diam, 16 mill.

*Candia, Rhodes.*

Var. LITTORALIS, Mousson.

Smaller, less distinctly striate, variegated with gray, base a little more convex.

*Cyprus.*

H. CAUTA, Westerl. Pl. 57, figs. 3, 4.

Moderately umbilicated, regularly striulate above, the last whorl rugose, dirty white, unicolored or black dotted, occasionally obsoletely, and very rarely distinctly chestnut banded; whorls 6½, the last descending in front; peristome acute, thinly white-lipped within.

Diam. 16–20 mill.

*Athens, Greece.*

Very probably a variety of *H. Cretica*, Fer.

H. PIRATARUM, Kobelt. Pl. 57, figs. 21–23, 24, 25.

Rather narrowly umbilicated, solid, chalky, irregularly striulate, white, usually variously chestnut banded and strigate, apex black; whorls 6, the last dilated, slightly deflected in front; peristome simple, with porcellanous inner lip. Diam. 1 in.

*Algiers.*

Var. MINOR.

Shell smaller, more globose.

H. DEVAUXII, Debeaux. Pl. 58, figs. 29–31.

Narrowly umbilicated, stout, strongly striate, whitish, with five interrupted chestnut bands, spire maculated with chestnut; body whorl with obtusely angulated periphery; peristome with strong white internal lip. Diam. 12 mill.

*Kabylæa.*

Bourgingnat considers this identical with *H. mœsta*, Parreyss.

H. VESTALIS, Parreyss. Pl. 57, figs. 26–28.

Moderately umbilicated, solid, white, shining, sometimes chestnut banded; whorls 5–5½, the last wide; peristome simple, a little lipped-within. Diam. 12 mill.

*Egypt, Syria.*

*H. mirabilis*, Parr. has been referred to this species, as well as *H. palmarum* and *Alexandrina*, Parr. and *H. striata*, Ehrenb.

Var. RADIOLATA, Mousson.

H. TERVERII, Mich. Pl. 58, figs. 32–34.

Moderately umbilicated, somewhat solid, regularly striate, a little shining; whitish, chestnut color or greyish, variously punctate, maculated or banded with grey or dark chestnut, apex corneous; whorls 6, the last subangulated above; peristome acute, labiate, sometimes bilabiate within. Diam. 13 mill.

*France, Algiers.*

It is *H. cisalpina*, Jan. Mss.

H. PHARI,, Fagot. Pl. 58, figs. 37, 38.

Rather narrowly umbilicated, with conical spire, strongly striate; yellowish, interruptedly banded with chestnut. Diam. 12 mill.

*Trieste.*

H. ADOLFI, Pfr. Pl. 58, figs. 41–44.

Moderately umbilicated, rather solid, closely costulate-striate, white, interruptedly or subcontinuously banded with chestnut or ferruginous; whorls 6, the last narrow, not descending; peristome simple, whitish-or chestnut-lipped within. Diam. 20–25 mill.

*Almeria, Spain.*

*H. Terverii* of Rossmassler, not Mich.

H. STIPARUM, Rossm. Pl. 58, figs. 45–48.

Moderately umbilicated, solid, chalky, with close, sharp striæ, rarely maculosely striate with chestnut; whorls 6, slowly enlarging, the last turgid, subdescending in front, periphery subangulated; peristome simple, acute, remotely white-lipped within.

Diam. 20 mill.

*Almeria, Spain.*

H. FINITIMA, Morelet. Pl. 58, figs. 39, 40.

Moderately umbilicated, chalky, costulate or occasionally striate, whitish or greyish fulvous, sometimes banded; whorls 6, convex, the last not descending, carinate, the carina often crenulated; peristome simple, remotely labiate within. Diam. 19 mill.

*Morocco.*

H. ARIGONIS, Rossm. Pl. 58, figs. 51–54.

Rather narrowly umbilicated, with thread-like costulæ above, shining, yellowish, variegated and banded with chestnut; whorls 6, narrow, the last subdepressed at the suture; peristome simple, white-lipped within. Diam. 22 mill.

*Spain.*

H. CESPITUM, Drap. Pl. 58, figs. 55–57; Pl. 59, figs. 58, 59.

Moderately umbilicated, striate, white, usually numerously, more or less interruptedly banded with chestnut, sometimes unicolored; whorls 6, the last large, narrow, scarcely descending in front; peristome acute, white lipped within. Diam. 20–25 mill.

*France, Spain, Italy, Sicily* etc.

The synonymy includes *H. varians* and *H. fasciata*, Risso, *H. carnina*, Chiereg., ? H. *fasciolata*, Poir., *H. Eurythmia*, Hartm., and probably *H. cespitoides*, Fischer, said to come from New Caledonia.

Var. INTRODUCTA, Ziegler. Fig. 59.

Depressed, faintly banded, or yellowish without band, umbilicus wider.

*N. Italy; Grasse, France.*

Var. DISMASTHIA, Nevill.

Depressed, rather solid, whorls 7, scarcely convex, last whorl compressed, scarcely descending, umbilicus narrower.

*Mentone, and near Genoa.*

Var. ALTICOLA, Nevill.

More elevated, thinner, widely umbilicated; whorls 7, convex, the last globosely rounded, tumid at base.

Diam. 27·5, alt. 18 mill.

*Mts. Mentone.*

Var. AMORICANA, Bourg. Fig. 57.

Spire conical, composed of slowly increasing whorls, the last whorl more rapidly increasing, slowly descending, aperture more oblique, umbilicus narrower, peristome more strongly lipped.

*Depts. Morbihan and Alpes-Maritimes, France.*

H. INTERPRES, Westerl. Pl. 58, figs. 35, 36.

Rather widely umbilicated, solid, a little shining, yellowish white, unicolored or variously, interruptedly banded with chestnut, regularly, thinly striate above, last whorl closely spirally lineated; whorls 6–6½, the last a little dilated, descending in front; peristome simple, acute, remotely white-lipped within.

Diam. 17–21 mill.

*Eubœa, Greece.*

H. EREMOPHILA, Boissier. Pl. 58, figs. 49, 50; Pl. 59, figs. 68–70.

Moderately umbilicated, somewhat solid, irregularly striulate, chalky white, suture linear; whorls 4½–5, flattened above, the last narrow, scarcely descending anteriorly, periphery subangular; aperture yellowish-brown, becoming white towards the margin, peristome simple, thinly lipped within. Diam. 1 inch.

*Syria, Desert of Sinai.*

*H. cremnophila*, Boiss. (err. typ.).

Var. AMUNENSIS, Martens. Figs. 68–70.

Somewhat smaller, with narrower umbilicus, orange-yellow.

*Desert of Egypt.*

H. ERKELII, Kobelt. Pl. 59, figs. 65–67.

Rather narrowly umbilicated, striulate, solid, white, with more or less obsolete chestnut bands, apex corneous; whorls 5, somewhat rapidly enlarging, the last subdivided, flattened above, slightly descending in front; periphery simple, acute, white-lipped within, aperture brownish. Diam. 22–24 mill.

*Egypt.*

H. GLOBULOIDEA, Terver. Pl. 59, figs. 71–73.

Narrowly umbilicated, rather solid, irregularly striate, shining, unicolored to multifasciate with chestnut, apex corneous; whorls 6, the last large, not descending in front, base convex; peristome simple, sublabiate within. Diam. 20–25 mill.

*Algeria.*

*H. cespitum*, var. *Algeriana*, Grat. and *H. arenarum*, Bourg. (figured), are synonyms.

H. ENHALIA, Bourg. Pl. 59, figs. 76–78.

Narrowly umbilicated, thinly, irregularly striate, white, often banded with chestnut; whorls 5–6 slowly enlarging, convex, with deep suture, last whorl inflated, rounded; aperture circular, peristome acute, slightly margined within. Diam. 7–9 mill.

*St. Jean de Luz.*

*H. ericetorum*, Var. *minor*, Moquin-Tandon, and *H. arenosa*, Dupuy, not Ziegl. are synonyms.

H. NEGLECTA, Drap. Pl. 59, figs. 60, 61.

Moderately umbilicated, whitish, more or less banded with chestnut; whorls 5, convex, the last not deflected anteriorly; peristome simple, brownish lipped within. Diam. 14 mill.

*France, Germany, Northern Italy, Spain.*

*H. clivorum*, Hartm. is a synonym.

Var. FAGOTI, Westerl.

Openly umbilicated, spire conical, last whorl obsoletely angulated, aperture oval, margins distant.

*Villafranca.*

Var. SUBNEGLECTA, Bourg.

Spire more elate, shell more cretaceous, more solid, umbilicus narrower.

*So. France.*

H. ERICETELLA, Jouss. Pl. 59, figs. 62–64.

Widely umbilicated, thinly, remotely irregularly striate, whitish or ash colored, often continuously or interruptedly banded; whorls

6–7, a little convex, slowly increasing; peristome scarcely labiate within. Diam. 22 mill.

*France.*

It is *H. ericetorum*, Dupuy.

H. JOPPENSIS, Roth. Pl. 59, figs. 89, 90.

Rather narrowly umbilicated, solid, spire distinctly striate, body whorl smoother, whitish, sometimes chestnut rayed at the suture, or with dark spiral lines, apex corneous; whorls 5½–6, moderately increasing, the last not deflected; aperture fulvous, white-lipped within the peristome. Diam. 14 mill.

*Syria.*

Var. MULTINOTATA, Mouss.

More depressed, rugulosely striate, with spiral lines on the periphery and maculations at the suture, variously serially punctate. Diam. 17 mill.

Var. SUBKRYNICKIANA, Mouss.

Less convex above, striæ slighter, sutural maculations pallid, spiral zones subcontinuous.

H. CANDICANS, Ziegler. Pl. 59, figs. 74, 75, 81–85, 91, 92.

Moderately umbilicated, striulate, shining, white, sometimes with light chestnut revolving lines, and apex; whorls 5, convex, the last not descending; peristome simple, slightly labiate within. Diam. 18 mill.

*Germany, Austria, Hungary, L. Como.*

The synonyms include *H. candida*, Porro, *H. arenosa*, Zglr. *H. ericetorum*, Stein, *H. spirula*, Parr.

Var. HOMOLEUCA, Parr.

Spire subplane.

Var. DOBRUDSCHÆ, Parr. Figs. 91, 92.

White, without band, last whorl descending in front.

*Dobudscha.*

Var. PULLULA, Parr. Figs. 84, 85.

Smaller, aperture more oblique.

*Roumania.*

Var. OBVIA, Ziegler. Figs 81–83.

Rather widely umbilicated, subplane, striate, smoothish.

*Austria.*

Clessin has a Var. *Kroli*, with more elevated spire, shell smaller. Diam. 12 mill.

H. AMMONIS, Schmidt, Pl. 60, figs. 93–96; Pl. 59, figs. 86–88.

Moderately umbilicated, whitish, banded; last whorl slightly descending in front, aperture rounded, with chestnut or violaceous callus within the upper lip. Diam. 15–20 mill.

*Northern Italy, Dalmatia.*

*H. candicans*, De Betta and Mart. is a synonym. Marchioness Paulucci writes that it is almost impossible to separate this species from *H. neglecta*. The umbilicus is narrower than in the typical *ericetorum*, but I suspect that it will prove to be only a variety of that species.

Var. DISCREPANS, Tiberi. Figs. 86–88.

Widely umbilicated, smooth, scarcely striulate, shining, whitish, not banded; whorls 6, slowly increasing, the last narrow, descending in front, aperture oblique, chestnut within; peristome simple, acute, remotely labiate. Diam. 24 mill.

*Abruzzi, Ancona, Italy.*

H. ERICETORUM, Müll. Pl. 60, figs. 97–99.

Widely umbilicated, striulate, scarcely shining, whitish or pale brownish, concolored or variously banded with corneous or chestnut, apex chestnut colored; whorls 5–6, somewhat flattened, deflected in front; peristome simple, slightly labiate within. Diam. 15–18 mill.

*France, Germany, Sweden, etc.*

The synonymy includes *H. trochlearis*, and *H. obvia*, Andrz., *H. Küsteri*, Held, *H. Itala*, Linn.? *H. media*, Gmel.? *H. dubia*, Hartm. *H. zonaria*, Schranck.

Var. DEVIANS, Westerl.

Very widely umbilicated, depressed; whorls 6, the last dilated and deflected at the aperture.

*Agen, France; Saalfeld, Germany.*

H. *erica*, DaCosta, *H. umbilicaris*, Ol., and *H. obliterata*, Hartm. are synonyms.

Var. ALBELLA, Penn.

H. VULGARISSIMA, Schläfli. Pl. 59, figs. 79, 80.

Perhaps a variety of *H. ericetorum*; sometimes yellowish, but mostly white, more or less interruptedly chestnut banded, last whorl not descending in front.

*Varna.*

H. ABERRANS, Mousson. Pl. 60, figs, 2–4.

Widely umbilicated, solid, shining, scarcely striulate, opaque, white, rather indistinctly marbled, and rarely punctulate with grey; whorls 5, the last wider, not descending in front, rounded; peristome strongly white-lipped within. Diam. 15 mill.

*Turkey, Asia Minor, Kurdistan, Merssina.*

H. GYROIDES, Parr. Pl. 60, figs. 5–7.

Moderately umbilicated, solid, rugosely striate, chalky white, unicolored, suture rather deep; whorls 6, slowly increasing, the last scarcely wider, rounded, base flattened; peristome simple, acute, labiate within. Diam. 10 mill.

*Croatia.*

H. HOMOLEUCA, Sabljar, is a variety.

H. VUKOTINOVICI, Hire. Pl. 60, figs. 13, 14.

Moderately umbilicated, somewhat solid, striulate, chalky white, unicolored, or here and there maculate and strigate with chestnut-corneous; whorls 5, apex black, last whorl scarcely dilated, narrow, slightly descending in front; peristome acute, simple, chestnut-margined, with a strong internal lip. Diam. 12 mill.

*Croatia.*

*H. Liburnica*, Stossich is a synonym.

H. LEMOINEI, Debeaux. Pl. 60, figs. 11, 12.

Narrowly umbilicated, closely costulate striate, more distinctly towards the aperture, chalky white, with four or five broad chestnut bands; whorls 6, the last narrow, a little deflected in front, costulations becoming more prominent and subtuberculated on the periphery; peristome simple, obtuse. Diam. 16 mill.

*Algeria.*

H. PAMPELONENSIS, A. Schmidt. Pl. 60, figs. 8–10.

Rather widely umbilicated, somewhat thin, smoothly striulate; fulvous white, usually with a chestnut band above, and obsolete narrower zones on the base, apex corneous; whorls 6½; peristome simple, acute, slightly white-lipped within. Diam. 21–22 mill.

*Pampelona, Spain.*

H. DEJECTA, Jan. Pl. 60, figs. 100, 1.

Has usually been considered a variety of *H. candicans* or *H. ericetorum*. It is more elevated than the latter, smaller, chalky white, with or without a narrow band, umbilicus narrower.

Diam. 13 mill.

*Tauria.*

Kobelt makes it a distinct species, but Westerlund places it in the synonymy of *H. candicans*.

H. Derbentina, Andrz. Pl. 60, figs. 24, 25, 15–17.

Widely umbilicated, solid, lightly striulate, whitish, unicolored or with interrupted chestnut bands, apex corneous, suture impressed; whorls 6, convex, rather rapidly enlarging, the last slightly descending in front; aperture white, peristome white-lipped within.

Diam. 18 mill.

*Caucasus, Crimea, Asia Minor.*

Var. isomeria, Friv.

More depressed, whorls less inflated, umbilicus a little larger.

Var. Armeniaca, Bayer.

More depressed and dilated, with scarcely prominent apex, with sutural maculations confluent in an irregular band, umbilicus wider.

Var. suprazonata, Mouss.

Smaller, somewhat depressed, with a dorsal and a sutural zone, and numerous inferior spiral lines.

Var. suberrans, Mouss.

Smaller, a little more depressed, umbilicus deviately dilated, whitish; obscure yellowish maculations beneath the suture, base variously painted with fulvous spiral lines.

*Merssina.*

Var. Caucasica, Parr. Figs. 15–17.

Spire variable, somewhat elevated or depressed, white, without bands.

*Caucasus.*

H. Krynickii, Andrz. Pl. 60, figs. 18–21.

Narrowly umbilicated, striulate, shining, white, variously ornamented by interrupted or continuous chestnut bands, apex corneous; whorls 5½–6, the last inflated, sub-deviating in front; peristome acute, white-lipped within.

Diam. 16 mill.

*Crimea, and shores of the Caspian Sea.*

*H. Babondubii*, Parr. and *H. Theodosiæ*, Clessin are synonyms, and probably *H. radiolata*, Mousson is also identical; it was formerly referred to *H. vestalis*, Parr. as a variety.

Var. Candaharica, Pfr. Pl. 60, figs. 22, 23.

Moderately umbilicated, obliquely striulate, a little shining, brownish white, with narrow, maculosely interrupted chestnut and

chocolate bands, apex corneous; whorls 5½, the last not descending in front; peristome acute, subremotely labiate within.

Diam. 16 mill.

*Candahar.*

H. Dautezi, Kobelt. Pl. 60, figs. 26–28.

Rather narrowly umbilicated, somewhat solid, irregularly striulate, yellowish white to fulvous, with a median white band, and other chestnut bands, elegantly radiately maculated above, apex black; whorls 6, slowly enlarging, with a white sutural line, last whorl subinflated, slightly descending in front; aperture showing the exterior markings, peristome acute, chestnut margined, remotely white lipped within. Diam. 17·5 mill.

*Algesiras, Gibraltar.*

H. instabilis, Ziegler. Pl. 60, figs. 29–35; Pl. 61, figs. 39–47, 55, 56.

Moderately umbilicated, striate-rugose, solid, whitish, often radiated and obsoletely interruptedly fasciate with chestnut; whorls 5, convex, slowly increasing, the last narrow, scarcely descending in front; peristome simple, acute, margins approaching.

Diam. 11–14 mill.

*Galicia, Transylvania, Crimea.*

A very variable species. According to madame Paulucci, who has made a special study of the species, *H. Leopolitana,* Andrz. *H. Spadæ,* Calc. (figs. 44–47). *H. nubigena,* Charp, (figs. 55, 56). *H. bathyomphala,* Charp. (figs. 39–43). *H. destituta,* Charp. (figs. 34, 35), *H. ocellus,* Villa, *H. nubila,* Charp., and *H. discrepans,* Tiberi are synonyms.

Var. Græca, Martens.

Depressed, white or yellowish white, unicolored or banded below, thinly striate, last whorl obsoletely angulated, not descending; peristome scarcely labiate within.

*Greece.*

*H. Iphigeniæ,* Dubois, said to come from Tauria, may be a synonym.

Var. Bakowskyana, Clessin. Figs. 31–33.

Smaller, rather depressed; strongly, irregularly striate, unicolored or fasciate; whorls 5–6, rounded; aperture rounded.

Diam. 13 mill.

*Galicia.*

Var. SPIRULA, Zelebor.

Globosely depressed, spire conoidal, whitish with black dots, or a narrow light brown band and brown dots; last whorl narrowly convex, descending.

*Dobrudscha.*

H. DRAGORICHI, Zelebor. Pl. 60, figs. 36–38.

Rather narrowly umbilicated, solid, striate, a little shining, white, apex corneous; whorls 5½, the last dilated, scarcely descending; peristome strongly white-lipped within. Diam. 16 mill.

*Samsun, Asia Minor*

H. SPHÆRITA, Hartm. Pl. 61, figs. 50, 51.

Moderately umbilicated, striate, white, more or less interruptedly fasciate with chestnut, suture deep; whorls 6½; peristome acute, white-lipped within. Diam. 18–22 mill.

*Near Oran, Algiers.*

H. ORANENSIS, Morelet. Pl. 61, figs. 57–59.

Rather narrowly umbilicated, closely striate, whitish, with chestnut bands, more or less maculosely interrupted; whorls 9, somewhat flattened, with superficial suture, the last whorl scarcely deflected in front, base convex; peristome simple, somewhat obtuse, labiate within. Diam. 14–16 mill.

*Oran, Algiers.*

Pfeiffer suspected *H. Colomesiana*, Bourg. (p. 232) to be identical, and a synonym of this species.

H. ILLIBATA, Parreyss. Pl. 61, figs. 60, 61.

Rather narrowly umbilicated, striulate, whitish or fulvous, seriately variegated with chestnut; whorls 5, somewhat flattened, moderately increasing, last whorl scarcely descending anteriorly, carinated, base convex; peristome acute, chestnut-lipped within.

Diam. 14 mill.

*Algeria.*

H. PAPILLATA, Pfr. Pl. 61, fig. 68.

Narrowly umbilicated, somewhat solid, irregularly striate, opaque, whitish, nebulously strigate, maculate and banded with chestnut, apex papillary; whorls 5, the last slightly descending; peristome simple, acute. Diam. 23 mill.

*Hab. unknown.*

H. FEDTSCHENKOI, Martens. Pl. 61, figs. 52–54.

Rather widely umbilicated, lightly striated, whitish; whorls 4½,

flattened, the last rounded, rather narrow, a little descending in front; peristome simple, acute. Diam. 15 mill.

*Sarajchan, Turkestan.*

H. Ebusitana, Hidalgo. Pl. 61, figs. 48, 49.

Moderately umbilicated, somewhat solid, with very close threadlike striæ, corneous, with chestnut bands, and irregular opaque white maculations, spire very obtuse, or plane; whorls 6, flattened, the last anteriorly deflected, base convex, smoothish about the umbilicus; peristome simple, white-lipped within.

Diam. 16 mill.

*Ins. Ebuso, Balearic Is.*

H. Stolickzkana, Nevill. Pl. 61, figs. 62–64.

Moderately umbilicated, irregularly striate above, striæ obsolete below, white, with two chestnut bands, apex brown; whorls 5½, suture distinct; peristome slightly thickened within.

Diam. 16·5 mill.

*Yarkand.*

A small variety, about half-size, not quite so flat, the bands obsolete, occurred at *Tingchin*.

H. Hamackensis, Ruffray. Pl. 61, figs. 65–67.

Narrowly umbilicated, obliquely striulate, solid, chalky, white, apex corneous; whorls 6, slowly increasing, with impressed suture, the last whorl rounded, subcompressed, slowly descending above; peristome simple, acute, labiate within, margins approximating, joined by a thin callus. Diam. 15 mill.

*Hamacen, Abyssinia.*

H. subintvelliana, Bourg. Pl. 61, figs. 69–71.

Narrowly umbilicated, rather solid, subpellucid but chalky, strongly striate, white, the apex blackish or brownish; whorls 6, at first slowly increasing, the last whorl rapidly, suture impressed, last whorl rounded, not descending; peristome acute, not thickened within, margins joined by an inconspicuous callus.

Diam. 15 mill.

*Hamacen, Abyssinia.*

*Unfigured species of Helicella.*

H. Santorina, Letourneux. H. Therasina, H. Foucquei, H. Nomikensis, *Ins. Santorin, Greece.*

H. suspecta, Westerl. *Crete.*

H. Ambrellana, Charp. *France.*

H. Odarsensis, H. herbatica, H. Montgiscardiana, H. Salaumica, H. Lersiana, Fagot. *France.*

H. Heripensis, H. Solaciaca, H. Thuillieri, H. Lorogloss-icola, Mabille. *France.*

H. Ingoi, H. Palumboi, Cafici. *Palermo.*

H. trepidula, H. alluvionum, H. Da Silvæ, Servain. *France.*

H. Dantei, (*H. Pantenelli*, Bourg. a syn.) H. Velaviana, H. tri phera, H. Pisanorum, H. linara, H. xalonica, H. lathræa, H. misara, H. maroniana, H. enhalia, Bourg. *France.*

H. arenivaga, H. nautinica, H. subulivaga, Mabille. *France.*

H. bathytera, Blanc (*H. sphæriomphala*, Bourg.) *Greece.*

H. xera, Hagenmüller. *France.*

H. Bonaldai, Adami. *Italy.*

H. Cyzicensis, Galland. *France.*

H. nautica, H. Idanica, H. actiella, Locard. *France.*

H. ilicis, Florence. *France.*

H. suberis, H. Evenosi, Bourg. *So. France.*

H. Euthymeana, Locard. *Mentone.*

H. megastoma, Bourg. *Balearic Is.*

H. Lieuranensis, Bourg. (*H. fasciolata*, Locard, pars.), *France, Spain.*

H. Carhuzaci, H. acosmeta, H. virgultorum, H. Morbihana, H. Tardyi, Bourg. *France.*

H. Montandoni, Clessin. *Dobrudscha.*

H. Nikitai, Clessin. *Montenegro.*

H. Renoufi, H. Synerosa, Servain. *Hungary.*

H. bathyteropsis, Ancey. *Zenica.*

H. Fedtschenkopsis, H. Reneana, Ancey. *Turkestan.*

H. Heynemanni, Kobelt. *Tetuan.*

H. Desgodinsi, Ancey. *Thibet.*

Subsection IV, Jacosta, Moquin Tandon. 1855.

H. filimargo, Ziegler. Pl. 61, figs. 73–75, 72.

Widely umbilicated, substriate, chalky white, rarely fasciate; whorls 5, flattened above, rounded below, periphery with a thread-like carina, evanescent in the fully grown individual; peristome simple, acute, remotely labiate within. Diam. 14–20 mill. *Crimea.*

It is *H. taurica*, Partsch and *H. chersonesica*, Mühlf. The first figures represent the state of the shell as usually found in collections; it is only recently that Clessin (Mal. Blätt. N. S. VI. 46) has made known the fact that these are juveniles, and that in the adult (fig. 72) the carina has nearly vanished.

H. Retowskii, Clessin. Pl. 61, figs. 76–78.

More strongly striate, with higher spire and narrower umbilicus than the preceding species. Diam. 13 mill.

*Crimea.*

H. crenimargo, Kryn. Pl. 62, figs. 3, 4.

Narrowly umbilicated, closely, sharply striate, white, with a superior corneous band, and several narrower ones below; whorls 4½, the last subtumid above, convex below, periphery crenulately carinated; peristome acute, sublabiate within.

Diam. 8 mill.

*Caucasus.*

*H. Piatigorskiensis*, Bayer is a synonym.

Var. obtusior, Mousson.

Carina less crenulated, no superior band, inferior lines greyish.

H. corrugata, Gmel. Pl. 61, figs. 79–81.

Rather widely umbilicated, costulate, whitish, with chestnut spiral lines below; whorls 4½–5, tumid above, convex below, periphery with a crenulated carina; peristome acute, chestnut lipped within. Diam. 13·5 mill.

*Italy, Sicily.*

It is *H. rugosa*, Lam. *H. Groyana*, Fer., and *H. Gargottæ*, Phil.

H. præclara, Cafici. Pl. 62, figs. 86–88.

Narrowly umbilicated, yellowish, with three or four chestnut bands, one of them above the periphery, costulate; whorls 5½, carinate at the suture, the last with a crenulated carina, becoming evanescent towards the aperture, flattened above, turgidly convex below; aperture white-lipped within. Diam. 8 mill.

*Sicily.*

H. dormiens, Benoit. Pl. 62, figs. 89–91.

Moderately umbilicated, costulate-striate, whitish, with chestnut strigations above, multifasciate with chestnut below, spire subele-

vated, pyramidal; whorls 6, subplanulate above, convex below, periphery carinate; peristome acute, white-lipped within.

Diam. 13 mill.

*Ins. Maretimo, Sicily.*

Var. UNICOLOR, Benoit.

Whitish, sometimes the inferior bands obsolete.

Var. RUGULOSA, Benoit.

Chestnut white, with distant, serial, chestnut maculations above, without markings below; costulately rugose.

H. TINEANA, Benoit. Pl. 62, figs. 92–94.

Rather narrowly umbilicated, closely, minutely costulate, dirty white, unicolored or chestnut banded; whorls 5, subplane, the last a little tumid above, convex below; scarcely descending in front, periphery carinate, carina vanishing towards the aperture, suture margined; peristome acute, chestnut-lipped within.

Diam. 12·5 mill.

*Sicily.*

Var. KOBELTIANA, Westerl.

Narrowly umbilicated, globosely depressed, spire conoidal, obtuse, reddish brown, umbilical region yellowish corneous, with a median white band, white at the suture; aperture thinly white-lipped.

H. TRISTRAMI, Pfr. Pl. 62, figs. 95–97.

Rather widely umbilicated, thin, obliquely plicate-striate, opaque, dirty white, obsoletely variegated with corneous; whorls 5, flattened, convex below, periphery crenulately carinate; peristome acute, sublabiate within. Diam. 12 mill.

*Tunis.*

H. ARIANENSIS, Bourg. Pl. 62, figs. 98–100.

Rather narrowly umbilicated, carinate, convex above and below, solid, chalky, rugose, costate, greyish, somewhat obscurely interruptedly banded with chocolate; whorls $5\frac{1}{2}$, slowly increasing, the last shortly descending at the aperture; aperture deeply labiate.

Diam. 8 mill.

*Tunis.*

H. SPRATTI, Pfr. Pl. 61, figs. 82, 83.

Rather widely umbilicated, closely costulate, dirty white or brownish, with darker bands; whorls 5, turgid above, base convex,

periphery denticulately carinate; peristome acute, white-lipped within. Diam. 9 mill.

*Malta.*

*H. Schembriana*, Benoit is a synonym.

Var. SIDERITES, Friv.

Pyramidal, rugose, moderately umbilicated, convex below, white, sometimes with chestnut maculations above, bifasciate with chestnut below; whorls 4½, the last descending, with a dentate carina.

Diam. 9 mill.

*Syra.*

H. GROVESIANA, Paulucci. Pl. 61, figs. 84, 85.

Rather widely umbilicated, solid, cretaceous white, closely costulate-striate, suture slightly crenulated; whorls 5, a little turgid above, convex below, carina compressed, crenulated; simple, white-lipped within. Diam. 9·5 mill.

*Abruzzi, Italy.*

With higher spire, finer striæ and smaller umbilicus than in *H. Spratti.*

H. ROZETI, Mich. Pl. 62, figs. 26–28.

Narrowly umbilicated, costulate-striate, dirty white, marbled and interruptedly banded with chestnut; whorls 5, subplanulate, the last not descending, base convex, periphery carinate; peristome acute, white-lipped within. Diam. 12 mill.

*Majorca, Sicily, Morea, Algiers.*

It is *H. amanda*, Rossm., *H. Boissyi*, Terver, *H. limbata*, Phil., and ? *H. striatula*, Linn.

H. USTICENSIS, Calcara. Pl. 62, figs. 29–31.

Narrowly umbilicated, rather thin, obliquely costulate-striate, opaque, white, with interrupted chestnut bands, suture linear; whorls 5½, flattened above, base convex, almost cylindrically compressed around the umbilicus, periphery carinate; peristome acute, white-lipped within. Diam. 14·5 mill.

*Ins. Ustica, Sicily.*

H. HENONIANA, Bourg. Pl. 62, figs. 17–19.

Narrowly umbilicated, subpellucid, costulate-striate, corneous, flamed with reddish or grey above, with four somewhat interrupted bands below; whorls 6, carinate, flat above, a little convex below, periphery acutely carinated; peristome acute.

Diam. 17 mill.

*Kabylæa.*

Differs from *H. Rozeti* in size, closer and more regular striæ, more acute carina, flatter whorls, the last not descending, peristome not labiate, umbilicus narrower.

H. Lacosteana, Morlet. Pl. 62, fig. 5.

Widely umbilicated, discoidal, arcuately plicate-striate, whitish, with nebulous chestnut maculations; whorls 6½, suture subcrenulated, margined, last whorl with a sharp carina, flattened above, more convex below, scarcely descending at the aperture; peristome simple, acute. Diam. 22 mill.

*Chott-Djerid, Djebel-Aidoudi.*

H. Brondeli, Bourg. Pl. 62, figs. 20–22.

Narrowly umbilicated, somewhat fragile, diaphanous, costulate; whorls 5½, convex, with well-impressed suture, the last subtumid above, convex below, crenulately carinated, peristome acute, not labiate. Diam. 11 mill.

*Algeria.*

H. Rouvieriana, Bourg. Pl. 62, figs. 14–16.

Narrowly umbilicated, somewhat thin, subpellucid, corneous, sometimes subflammulate above, strongly striate; whorls 6, slowly increasing, scarcely convex above, convex below, descending a little at the aperture, periphery obtusely carinated, carina vanishing in front; peristome simple, acute. Diam. 10 mill.

*Kabylæa.*

H. explanata, Müll. Pl. 62, figs. 11–13.

Rather widely umbilicated, lightly striate, yellowish white or fulvous, smoothish, subplane above; whorls 5, with compressed carina, convex below, slightly descending in front; peristome acute, white-lipped within. Diam. 12–17 mill.

*France, Algiers.*

*H. albella*, Drap. is a synonym. *H. maculata*, Müll. is doubtfully identified as a juvenile.

H. Moraguesi, Kobelt. Pl. 62, figs. 9, 10.

Widely umbilicated, plane above, somewhat solid, whitish or very obsoletely chestnut banded, strongly, obliquely costulate, with intervening striæ; whorls 5½, carina crenulated, base convex, indistinctly cristate around the umbilicus; peristome acute, white-lipped within. Diam. 12 mill.

*Ins. Palma, Balearic Archip.*

Has recently been referred to *H. explanata* as a ribbed variety (Jour. de Conch. 104, 1887), but has a half whorl additional to that species, although smaller.

H. IDIA, Bourg. et Letourn. Pl. 62, figs. 23–25.

Widely umbilicated, irregularly, flexuously costulate; whorls 4, with carinated suture, last whorl very sharply carinated, carina blade-like, umbilical region defined by a sharp angle.

Diam. 14 mill.

*Tunis.*

H. DEPRESSULA, Parreyss. Pl. 62, figs. 6–8.

Widely umbilicated, rugosely striate, yellowish white; whorls 6, carinated, subplanate above, last whorl whith compressed, crenulated carina, scarcely descending in front, base convex; peristome acute, labiate within. Diam. 20 mill.

*Algeria.*

H. SIGENSIS, Kobelt. Pl. 62, figs. 1, 2.

Widely umbilicated, plane above, somewhat solid, chalky white, or with inferior chestnut bands; whorls 5, striate-costulate, with irregularly carinate suture, last whorl slightly descending in front, the compressed peripheral carina white-crenulated, base inflated, with whitish ribs, more distinct than above; peristome acute, labiate within. Diam. 17 mill.

*Oran, Algiers, near Nemours, at the old Portus Sigensis.*

*H. Jolyana*, Bourg., has been referred here.

H. CATOCYPHIA, Bourg. Pl. 63, figs. 26–28.

Rimately perforate, whitish, chalky, striate; whorls $4\frac{1}{2}$, rapidly increasing, planate above, the last acutely carinated, not descending, base convex; peristome acute, labiate within, parietal wall with a tubercle. Diam. 10 mill.

*Chateau d'If, near Marseilles, France.*

H. SETUBALENSIS, Pfr. Pl. 63, figs. 29. 30.

Narrowly umbilicated, somewhat solid, closely lamellarly costate, opaque, fulvous white; whorls $5\frac{1}{2}$, planulate, exserted, serrulately carinated, the last not descending, base convex; peristome acute, labiate within. Diam. 9 mill.

*Near Setubal, Portugal; Alicante, Spain.*

*H. serrula*, Morel. is a synonym.

H. Barceloi, Hidalgo. Pl. 63, figs. 36–38.

Widely umbilicated, with close rib-like striæ, carinated at the suture and periphery, where the carina is minutely crenulated, whitish. Diam. 10 mill.

*Alicante.*

H. Montserratensis, Hidalgo. Pl. 63, figs. 31–33.

Narrowly umbilicated, nearly opaque, not shining, somewhat solid, closely irregularly costulate-striate, whitish, or yellowish grey, often with an interrupted chestnut band above the carina; whorls 5½, flattened, rather slowly increasing, the last deflected in front, carinate at the periphery, convex below; peristome acute, widely white-lipped within. Diam. 13 mill.

*Montserrat, Spain.*

H. Prietoi, Hidalgo. Pl. 63, figs. 34. 35.

Moderately umbilicated, somewhat solid, closely costulate, riblets somewhat obtuse, irregular, obliquely curved above, subflexuous below, here and there shorter or bifurcate, opaque, fulvous white, or ferruginous, sometimes with one to four interrupted bands; whorls 5–5½, a little convex, the last descending in front, crenulately carinated, base convex; peristome acute, white-lipped within. Diam. 10 mill.

*Malorca, Balearic Is.*

It is *H. Setubalensis*, Dohrn and Heynemann, not Pfr.

H. Ponsii, Hidalgo. Pl. 63, figs. 41, 42.

Moderately umbilicated, obliquely costulate, bifurcate on the base, yellowish, maculated and banded with chestnut; whorls 6, slightly convex, suture carinate, the last whorl slightly dilated, carina compressed, with white crenulations, base convex, obtusely cristate around the umbilicus; peristome acute, white-lipped within. Diam. 11 mill.

*Minorca and Cabrera, Balearic Is.*

H. Pollenzensis, Hidalgo. Pl. 63, figs. 43, 44.

Moderately umbilicated, rather thin, pellucid, closely costulate, here and there shorter and bifurcate below, fulvous corneous, with obscure bands below, opaque-whitish at the umbilicus; whorls 6, flattened above, the last not descending, convex below, obtusely angulated round the umbilicus; peristome acute, scarcely thickened within. Diam. 12 mill.

*Majorca, Pollenza, Balearic Is.*

H. Homeyeri, Dohrn and Heynemann. Pl. 63, figs. 39, 40.

Widely umbilicated, striate, bluish white, banded and maculated with chestnut; whorls 5, flattened above, the last descending in front, peripheral carina crenulated, base flatly convex, angulated round the umbilicus; peristome simple, labiate within.

Diam. 12 mill.

*Ins. Malorca, Balearic Archip.*

H. frater, Dohrn and Heynemann. Pl. 63, figs. 54, 55.

Differs from the preceding in being narrowly umbilicated, base convex, without umbilical angle.

*Balearic Isles.*

H. Nyelii, Mittre. Pl. 63, figs. 45, 46.

Rather narrowly umbilicated, somewhat solid, closely, lightly costulate, whitish or yellowish corneous, seriately maculated with chestnut above, usually banded below; whorls 5, the last subdeflected in front, periphery subcrenulately carinated, base convex; peristome labiate within. Diam. 11·5 mill.

*Minorca.*

H. Caroli, Dohrn and Heynemann. Pl. 63, figs. 47–50.

Very narrowly umbilicated, rugosely costulate above, smoother below, corneous white, banded with chestnut; whorls 5½, slightly convex, slowly increasing, the last scarcely descending in front, periphery obsoletely angulated; peristome simple, white lipped within. Diam. 9 mill.

*Balearic Is.*

H. Majoricensis, Dohrn and Heynemann. Pl. 63, figs. 56–58.

Moderatcly umbilicated, costulate, greyish yellow, maculated and bandəd with chestnut; whorls 5½, the last descending anteriorly, periphery carinated, base convex; peristome simple above, thickened and shortly reflected below.

Diam. 10 mill.

*Palma and Malorca, Balearic Is.*

H. Cardonæ, Hidalgo. Pl. 63, figs. 51–53.

Moderately umbilicated, thin, striate, shortly ciliated; brownish corneous, with a few chestnut maculations, sometimes alternately disposed at the suture; whorls 5½, flattened, the last descending anteriorly, periphery crenately carinated, convex below, umbilicus whitish; peristome simple, white, sublabiate below.

Diam. 10 mill.

*Mahon, Ins. Minorca.*

H. Ledereri, Pfr. Pl. 63, figs. 61–63.

Narrowly umbilicated, closely obliquely costulate, opaque, calcareous white; whorls 5, rather narrow, flat, exserted, all crenulately carinated, the last not descending, base convex; peristome simple, scarcely labiate within. Diam. 10·5 mill.

*Cyprus, Syria, Egypt, Tripoli.*

*H. Syrensis*, Bourg. is a synonym.

Var. regularis, Roth.

Spire depressed, not gradate, regular, less convex below.

*Palestine.*

H. Cisternasi, Hidalgo. Pl. 63, figs. 59, 60.

Narrowly umbilicated, somewhat solid, subopaque, very closely costulate-striate above, smoother below; whorls 6½, slowly increasing, the last deflected in front, periphery obtusely angulated, base convex; peristome white, slightly expanded, strongly-lipped within. Diam. 15 mill.

*Ins. Sta. Eulalia (Ivice), and Bosca.*

H. Cavannæ, Paulucci. Pl. 63, figs. 64, 65.

Narrowly umbilicated, rather solid, chalky, striate, whitish grey, with greyish fulvous punctations, apex corneous; whorls 5–6, slightly convex, the last with a thread-like carina, descending at the aperture, and with rounded base; aperture white-lipped within. Diam. 7 mill.

*Mts. Central Italy.*

Var. scissa, Paulucci.

Flatter, umbilicus wider, carina obsolete.

*Unfigured species of Jacosta.*

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|---|---|
| H. Syrosina, Bourg. | *Isl. Syra.* |
| H. callosa, Anton. | *Hab. unknown.* |
| H. conopsis, Morelet. | *Morocco.* |
| H. Adelaidæ, Pfeiffer. | *Australia.* |
| H. amphiconus, H. euphæodes, H. sphakiota, H. Siderensis, all of Maltzan. | *Crete.* |
| H. siphnica, | *Libya.* |
| H. micromphalus, H. Semanni, Letourn. | *Algiers.* |
| H. Hariotiana, Bourg. | *Balearic Is.* |
| H. graja, Westerl. | *Greece.* |
| H. nummuliformis, Retowski. | *Crimea.* |

H. HYPERCONICA, Bourg. *Kabylæa.*
H. TELLICA, Bourg. *Cape Caxine, Mitidjah.*
H. PONSONBYI, Kobelt. *Oran, Algeria.*
H. HAMUDÆ, Kobelt. *Tunis.*
H. HIERICA, Bourg. *Ins. Maritimo, Sicily.*
H. MULTIFARIA, Ziegler. *Cyprus.*
H. MELOSINA, Bourg. *Milo, Grecian Archipelago.*
H. SOLIELLETI, Bourg. *Sahara.*
H. MILASCHEWITSCHI, Retowski. *Crimea.*
H. PLEURISCHURA, H. CHONOMPHALA, Bourg. *Sicily.*
H. HYPERPLATÆA, Servain. *Tunis.*
H. CÆLESTIS, H. BARRATTEI, H. SLONGINA, H. ARTARA, H. BURELLA, H. KHANGETINA, H. CONICULA, H. CALLISTODERMA, H. ENFIDANA, H. ZEUGITANA, H. TINIFORMIS, H. MENZELENSIS, H. SALIVOSA, H. ROZETOPSIS, H. AMMEDERANA, H. HAIDRANA, H. BIRTA, H. FRATISIANA, H. TAFERMICA, H. MEZESSARIA, H. ZITANICA, H. LOTOPHAGORUM, H. MENINXICA, H. MESEMBRICA, H. BONDRIESA, all of Letourn. and Bourg. *Tunis.*
H. TAUCHONIANA, H. MORINI, H. CITHAMATOLENA, H. TISSOTIANA, H. SAGETI, H. PLEURABDOTA, H. CACISTA, H. SYNTELA, H. NOCTUELLA, H. AXIOTHEATA, H. BARDOENSIS, all of Bourg. *Tunis.*
H. PARTHENIA, H. VAGANENSIS, H. PERLUTOSA, H. ARTONILLA, H. ASTONARA, Hagenmüller. *Tunis.*
H. MEMBRONICA, H. HALIA, H. IRRITA, Berthier. *Tunis.*

## APPENDIX.

A paper has come into my hands entitled "Collections for a Monograph of Tasmanian Land Shells, by W. Legrand, Hobartown, Tasmania, 1871." It contains a number of descriptions of Helices, mostly by Dr. Cox, and is illustrated by two lithographic plates. The printing is very roughly done, on one side of the leaf only, like proof-sheets. Pfeiffer did not cite this paper, in any of the volumes of his "Monog. Heliceorum," nor is it quoted in any European publication, to my knowledge. I do not know whether the paper was put into circulation or not, in any case its distribution must have been very limited; hence I quote and figure its species with some hesitation.

CHAROPA (Vol. II, p. 208).

H. CŒSUS, Cox, Pl. 37, figs. 42, 43.

Deeply, narrowly umbilicated, thin, light reddish brown; whorls 5, convex, the last slightly depressed in front, base convex, umbilical region excavated, surface with slightly irregular growth-lines; peristome simple, margins approximating. Diam. 4 mill.

*Tasmania.*

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H. HELICE, Cox. (Unfigured). *Tasmania.*

MICROCYSTIS, (Vol. II, p. 112).

H. TRANQUILA, Cox. Pl. 37, figs. 44, 45.

Deeply, narrowly umbilicated, thin, transparent, pale olivaceous brown, coarsely striated; whorls 5½, gradually increasing, the last slightly descending anteriorly; aperture diagonal, peristome simple, margins approximating. Diam. 9 mill.

*Tasmania.*

H. (RHYSSOTA), MIXTA, Cox. Pl. 37, figs. 58, 59.

Deeply, narrowly umbilicated, thin, transparent, shining, coarsely striated, yellowish brown, or light olivaceous brown; whorls 5, gradually increasing, flatly slanting towards the suture; peristome simple, thin, margins very slightly approaching.

Diam. 6 mill.

*Tasmania.*

*Unfigured Species.*

H. (VIDENA) DU CANI, H. (PARYPHANTA?) VITRINÆFORMIS, H. (VIDENA) QUÆSTIOSA, of Cox. *Tasmania.*

CONULUS (Vol. II, p. 172).

H. PARVISSIMA, Cox. Pl. 37, figs. 48, 49.

Narrowly umbilicated, transparent, thin, pale yellowish brown, smooth, shining, whorls 5½, convex, gradually enlarging, the last not descending in front; peristome simple, thin. Diam. 1·25 mill.

*Tasmania.*

LEUCOCHROA (p. 10).

H. BÆTICA, Rossm. p. 11.

Var. TUNETANA, Letourn. et Bourg.

Shell finely striate above, not shagreened, peristome not thickened, carinal thread not well defined.

*Tunis.*

H. Saharica, Debeaux. (unfigured). *Oran, Algiers.*

H. Bossieri, Charp. H. filia, Mousson.

Mr. Ancey has just published a new group Sphincterochila for these species; his name will not stand, being a synonym of Mima, Westerl. 1886.

Discus. (p. 19).

H. ruderata, Studer (p. 20).

Var. angulosa, Mousson. Pl. 63, fig. 69.

Periphery obtusely angulated.

*Amour Basin.*

H. Stokesi, E. A. Smith. Pl. 22, figs. 48–50.

Closely resembles H. coma, Gray (p. 22), but is more narrowly umbilicated, just a trifle more finely lirate, and has the body whorl roundly angulated above the middle,

*New Zealand.*

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H. Ganoda, Mabille. (unfigured). *Canary Is.*
H. helva, Cox. " *New Hebrides.*

H. Stephensi, Cox. Pl. 37, figs. 74–76.

Deeply, narrowly umbilicated, thin, transparent, dull brownish yellow; whorls 5, the last rather inflated, not descending, coarsely widely costulate, the interstices finely striate. Diam. 7·5 mill.

*Tasmania.*

See p. 46.

H. plexus, Cox. Pl. 37, figs. 77, 78.

Deeply, narrowly umbilicated, thin, dull pale horny brown, irregularly widely costulate, the interstices finely transversely striate; whorls 5, the last deflected in front, base smoother; margins of peristome joined by a rather thick callus. Diam. 6 mill.

*Tasmania.*

See p. 46.

H. positura, Cox. Pl. 37, figs. 79, 80.

Very narrowly umbilicated, thin, dull chestnut brown color, with strong, widely separated costæ, less marked below; whorls 4, gradually increasing, the last expanded, subcarinated, not depressed in front. Diam. 6 mill.

*Tasmania.*

H. COEPTA, Cox. Pl. 37, figs. 64, 65.

Rather widely umbilicated, thin, coarsely costulate, the ribs distant, running into the umbilicus below; whorls 4, the last rapidly increasing, not descending in front, suture impressed.

Diam. 3·3 mill.

*Tasmania.*

See p. 46.

H. DUBITANS, Cox. Pl. 37, figs. 81, 82.

Broadly umbilicated, thin, dark chestnut colored, coarsely costulate above, more closely and finely striate and shining below, faintly decussated about the umbilicus; whorls 4½ rapidly increasing, subangular. Diam. 12 mill.

*Tasmania.*

H. AGNEWI, Cox. Pl. 37, figs. 83, 84.

Widely, deeply umbilicated, very finely striated, horny brown color; whorls 4½, convex, slanting towards the deeply impressed suture, gradually increasing, the last not depressed in front.

Diam. 4·5 mill. *Tasmania.*

H. VIGENS, Cox. Pl. 37, figs. 60, 61.

With broad, shallow umbilicus, closely, sharply costulate, pale yellowish horn color; whorls 4½, gradually increasing, rounded, with deep suture, the last not descending in front.

Diam. 3·5 mill.

*Tasmania.*

Said to be badly figured.

H. JULIFORMIS, Cox. Pl. 37, figs. 85, 86.

With open, funnel-like umbilicus, yellowish, with regular broad chestnut rays, with close, hair-like riblets; whorls 5, flatly slanting, the periphery appearing as if crenated, last whorl not descending.

Diam. 3·5 mill.

*Tasmania.*

First given in the same work under the preoccupied name of *H. Gouldiana.*

?PUNCTUM (p. 28).

H. ALLPORTI, Legrand. Pl. 37. figs. 52, 53.

Narrowly perforate, thin, dark chestnut color, whorls 5, slightly convex, the last relatively larger and subangular above the middle, scarcely descending in front, base inflated, suture impressed; aper-

ture oblique, irregularly ovate, inclined to be contracted, peristome simple, margins converging, columellar margin almost covering the umbilicus. Diam. 8 mill.

*Tasmania.*

H. (Camæna) medianus, Cox. Pl. 37, figs. 46, 47.

Perforate, thin, transparent, reddish brown, with rather fine growth-lines; whorls 5½, the last conspicuously keeled and inflated, base excavated around the umbilicus. Diam. 10 mill.

*Tasmania.*

H. austrinus, Cox. Pl. 37, figs. 56, 57.

Narrowly umbilicated, light olive green, coarsely striated; whorls 5½, the last much inflated, descending in front, base convex. Diam. 9 mill.

*Tasmania.*

H. occultus, Cox. Pl. 37, figs. 50, 51.

Rather widely umbilicated, smooth, thin, shining, horn color; whorls 4, gradually increasing, rounded, laterally flattened, suture excavated, last whorl not descending in front.

Diam. 2·5 inch.

*Tasmania.*

H. (Videna) rugà, Cox. Pl. 37, figs. 93–95.

Widely, perspectively umbilicated, rather thin, yellowish corneous or dark olive, shining below; whorls 4½, rapidly increasing, with coarse rib-like striæ above, smooth below, last whorl much dilated and slightly depressed in front. Diam. 9 mill.

*Tasmania.*

Closely related to *H. bombycina* and *H. Sinclairi*, but smaller, rounder, and destitute of band.

H. (Rhyssota) Halli, Cox. Pl. 37, figs. 54, 55.

Narrowly umbilicated, thin, very finely striated, pale yellowish brown; whorls 4½–5, regularly increasing, rounded, with deep suture. Diam. 1·5 mill.

*Tasmania.*

H. (Rhyssota) trajectura, Cox. Pl. 37, figs. 68, 69.

Narrowly umbilicated, thin, transparent, not shining, pale brown, with irregular coarse growth-striæ; whorls 5½, the last disproportionally large and subcarinated; columellar lip widely dilated and reflected, half covering the umbilicus.

Diam. 8 mill.

*Tasmania.*

H. Marchianæ, Cox. Pl. 37, figs. 66, 67.

Broadly, perspectively umbilicated, thin, translucent, glossy, pale horny yellow, irregularly finely striated throughout and with irregular transverse horny streaks; whorls 4½–5, convex, very slowly increasing, suture wide and rather deep, last whorl scarcely descending in front. Diam. 5 mill.

*Tasmania.*

H. Ramsgatensis, Cox. Pl. 37, figs. 72, 73.

Narrowly umbilicated, finely regularly costulate, reddish horn color; whorls 5, gradually increasing, rather flatly compressed laterally, rounded above, suture deeply impressed.

Diam. 6·5 mill.

*Tasmania*

H. (Paryphanta) fulgetrum, Cox. Pl. 37, figs. 70, 71.

Very widely umbilicated, thin, translucent, irregularly finely striated, pale horny yellow; whorls 3½–4, flatly slanting, rapidly increasing, last whorl proportionally much distended, not descending in front, suture deeply impressed and finely margined.

Diam. 2·5 mill.

*Tasmania.*

Allied to the Australian *H. splendidula*, Pfr.

H. fusco-radiata, Cox. Pl. 37, figs. 62, 63.

Widely umbilicated, thin, smooth, shining, pale horny yellow, ornamented with irregular broad light-brown rays, with growth striæ; whorls 4, gradually increasing, rounded, suture deeply excavated, umbilicus with steep walls.

Diam. 3·3 mill.

*Tasmania.*

Goniodiscus (p. 43).

H. Daveyensis, Cox. Pl. 37, figs. 87, 88.

Broadly, deeply umbilicated, thin, opaque, light brown, with regular, widely separated costæ, the interstices finely transversely striated; whorls 6, flat above, base more convex, the umbilical region defined by an angle, into which the sculpture enters.

Diam. 10 mill.

*Tasmania.*

See p. 24.

H. Atkinsoni, Cox. Pl. 37, figs. 89, 90.

Broadly, perspectively umbilicated, thin, dull brown, with broad rays, less marked below, with coarse, widely separated riblets, and finely striated interstices; whorls 5½, very slowly increasing, rather flat above, convex below, umbilical periphery angulated.

Diam. 8 mill.

*Tasmania.*

See p. 24.

H. Kingstonensis, Cox. Pl. 37, figs. 91, 92.

Broadly, deeply umbilicated, pale horny yellow, with fine raised striæ; whorls 5, gradually increasing, suture deep, last whorl not depresssed in front; peristome margins joined by a rather thick parietal callus. Diam. 2·7 mill.

*Tasmania.*

H. costulata, Mollendorff. Pl. 63, figs. 66–68.

Widely umbilicated, discoidal, with close, arcuate riblets, horny fulvous; whorls 4, somewhat convex, with deep suture, the last whorl with acute carina, and angulate round the umbilicus.

Diam. 4 mill.

*Corea.*

H. semiplicata, Pfr. (p. 44).

Mr. Ancey cites this species as the type of a new group Atlantica.

*Unfigured species of Patula.*

H. Margatensis, H. spectra, H. Officeri, H. vexanda, all of Cox. *Tasmania.*

H. irregularis, Mousson (unfigured). *Viti Is.*

Anguispira, (p. 55).

Mr. W. G. Binney, in his Second Supplement to the fifth volume of the "Terrestrial Mollusks" etc. (Bull. Mus. Comp. Zool. XIII. Dec. 1886), has treated *H. Idahoënsis, Cooperi, Hemphilli* and *Haydeni* as varieties of *H. strigosa.* (See also *this work,* pp. 55–57). Mr. Binney has described and figured varieties *Binneyi, Newcombii, multicostata, Gouldi, albofasciata* and *castanea* of Hemphill, connecting *Idahoënsis* with *strigosa*; var. *Utahensis,* Hemphill, of the *Cooperi* form, and varieties *Oquirrhensis, Gabbiana* and *Wasatchensis,* Hemphill, of the *Haydeni-Hemphilli-strigosa* series. In the strict use of the term these are not varieties but merely selected specimens

from a continuous series; but they serve admirably to illustrate one of the most remakable instances of the specific variability of mollusks, known to science.

? TROCHOMORPHA, (p. 72).

H. SWETTENHAMI, H. THIEROTI, H. HARDOUINI, H. LAHATENSIS, De Morgan. (Unfigured). *Perak.*
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H. THEMIS, H. KANTAVUENSIS, Garrett. (Unfigured). *Viti Is.*

H. CORALLINA, Mousson, (p. 93).
Mr. Garrett considers this a distinct species from *H. Lüdersi*, Pfr.

VIDENA, (p. 82).

H. SPLENDENS, Semper. (p. 86). *Philippine Is.*
Figured in Journ. de Conch. 94. 1887.

H. SIBUYANICA, Hidalgo. *Philippine Is.*
H. LOOCENSIS, Hidalgo. *Philippine Is.*
H. ACUTIMARGO, Pfr. (p. 85). *Philippine Is.*

Hidalgo makes *H. radula* and *H. albocincta*, Pfr. and *H. curvilabrum*, Ads. and Reeve synonyms of this species.

PŒCILOZONITES, (p. 95).

For this group Mr. Ancey has recently proposed a new name, BERMUDIA, the type being *H. Bermudensis*, Pfr.

PELLA, (p. 104).

Mr. C. F. Ancey has established a new group LEJEANIA, for such species as *H. Darnaudi*, Pfr. *H. Isseliana*, *H. Jickeli*, Nevill, *H. Lejeaniana*, Bourg. etc. (p. 104), inhabiting the Mountains of Abyssinia and Sennaar.

SHELDONIA, Ancey. 1887.
Has been proposed for a South African group including *H. Trotteriana*, *H. Natalensis*, *H. cotyledonis*.

TRIGONOSTOMA, (p. 117).

H. BICONCAVA, Heude.
On account of the previously published *H. biconcava*, Pfr. (Manual, I, 130), Crosse has changed this name to *H. Outangensis*; but as Pfeiffer's species is an Elæa and not a Helix, Heude's name can be retained.

CARACOLINA, (p. 117).

H. BERTHELOTI, Fer. (p. 122).
Add Plate 24, figs. 49–51.

H. REYREI, Souverb. (p. 127).
Ancey has made this the type of a new group, ENTODINA.

POLYGYRATIA, (p. 124).

H. MACGREGORI, Cox. (p. 127).
This species has been made the type of a new genus (COXIA) by Mr. C. F. Ancey.

TRICHIA, (p. 172).

H. BOURNIANA, Bourg. Pl. 38, figs. 48–50.
Moderately umbilicated, fragile, glabrous, diaphanous, shining, sharply striate, subcostulate towards the suture, fulvous; whorls 6, convex, regularly slowly increasing, suture impressed; peristome acute, not thickened. Diam. 9 mill.

*Grande Chartreuse.*

H. PORTERI, Cox, (p. 183). Add Pl. 40, figs. 35, 36.

DORCASIA, (p. 205).

H. ALEXANDRI, Gray, (p. 213). Refer to Pl. 49, fig. 3, instead of fig. 6.

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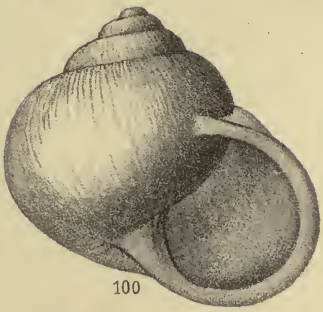
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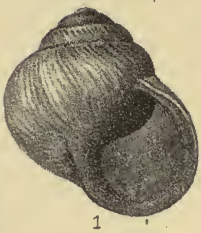
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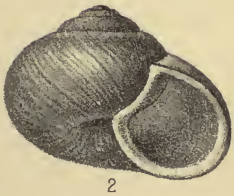
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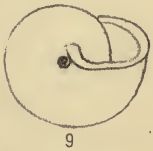
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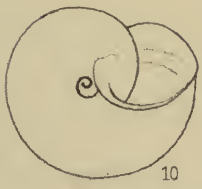
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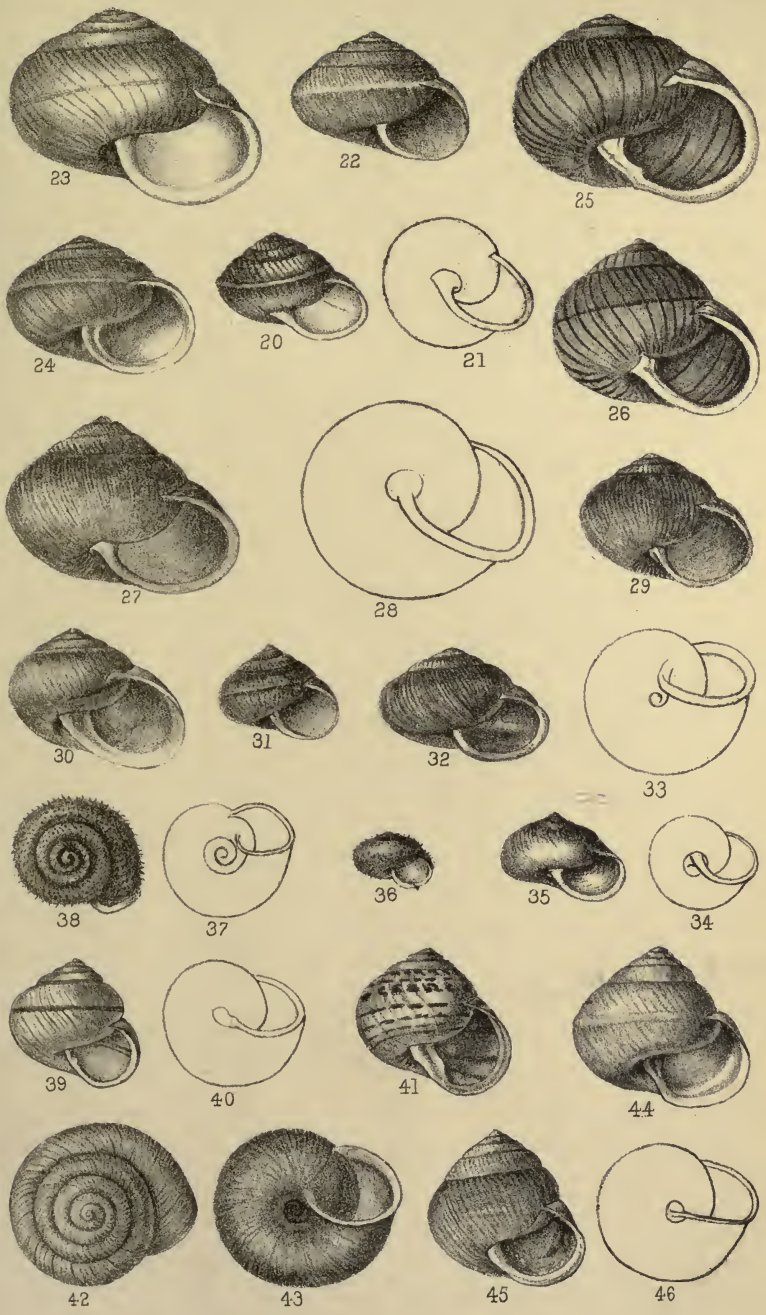
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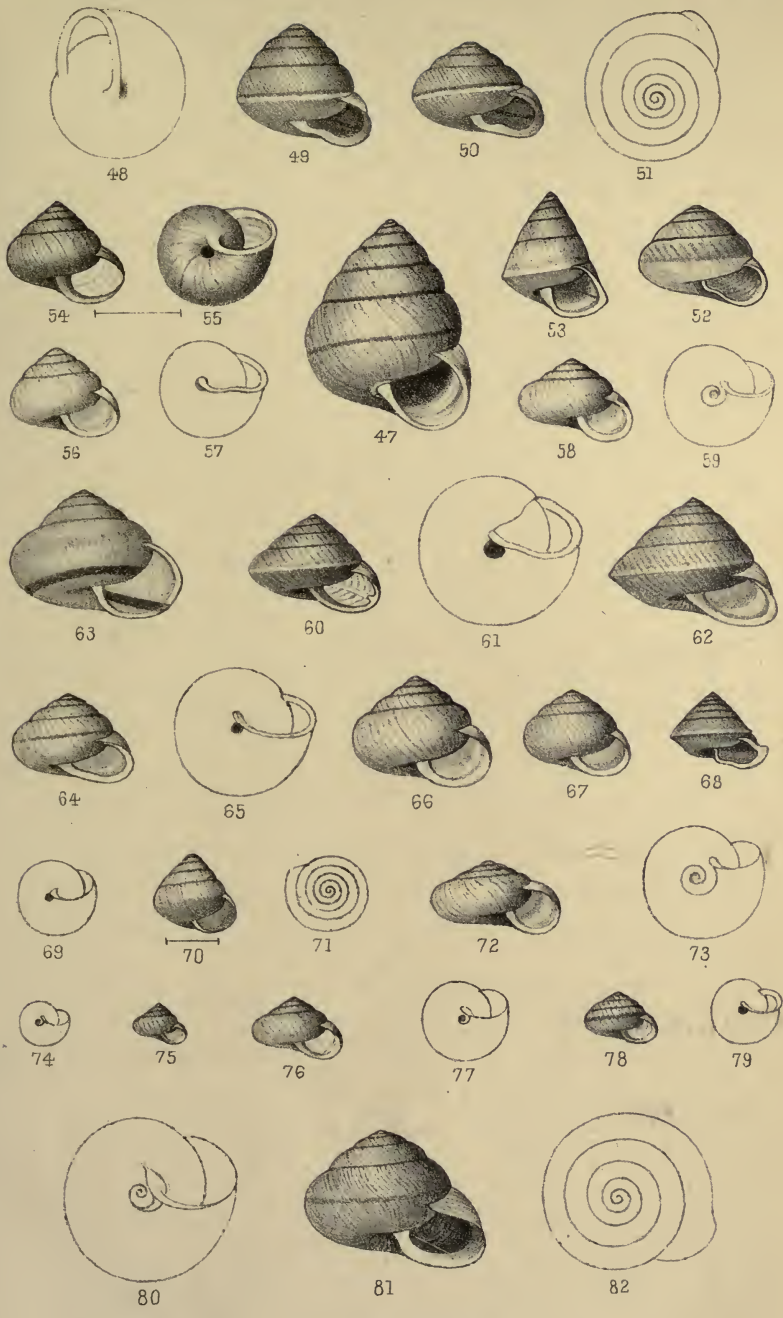
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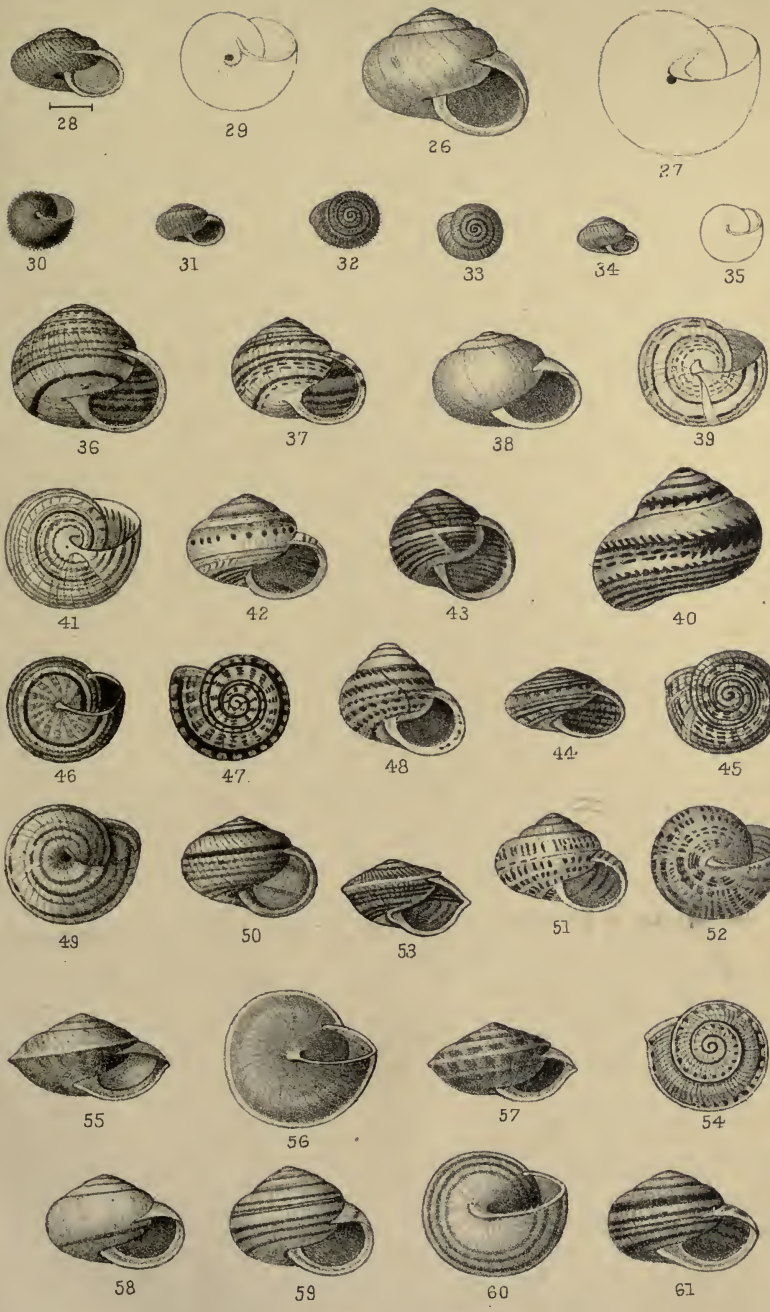
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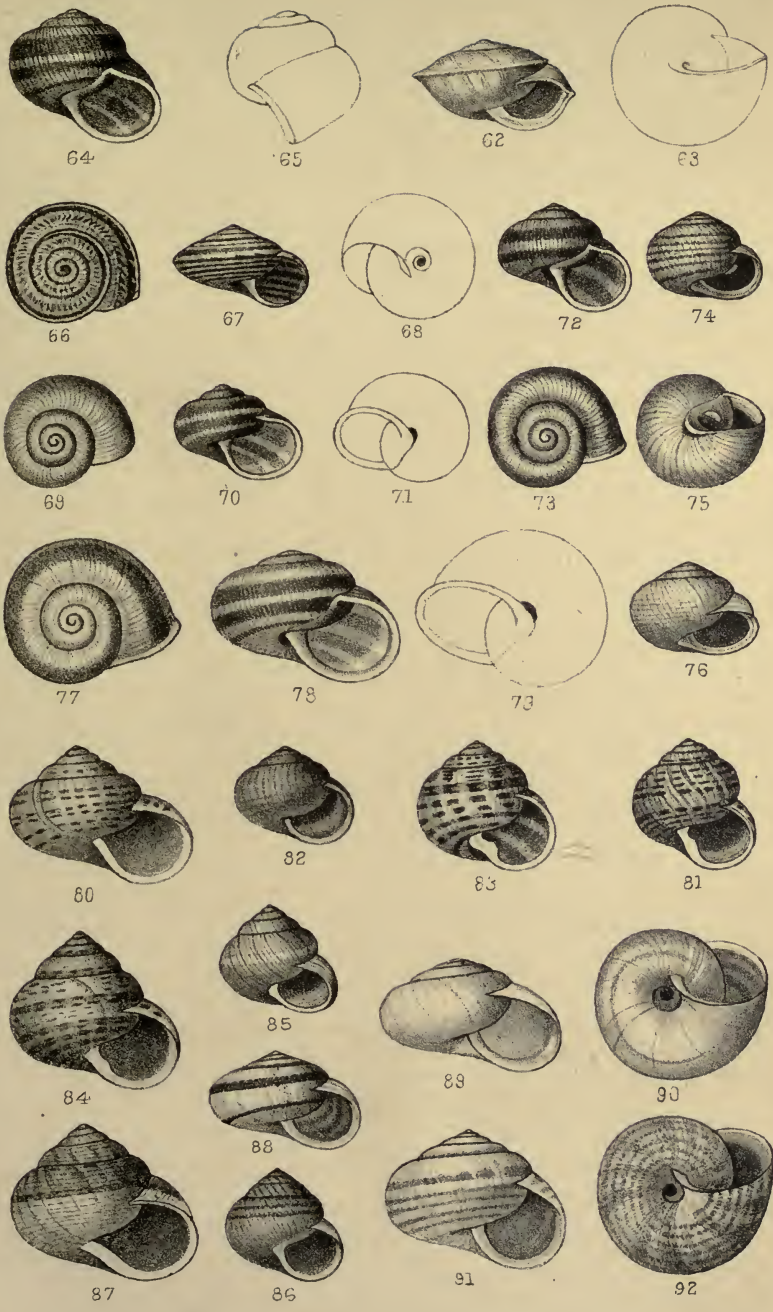
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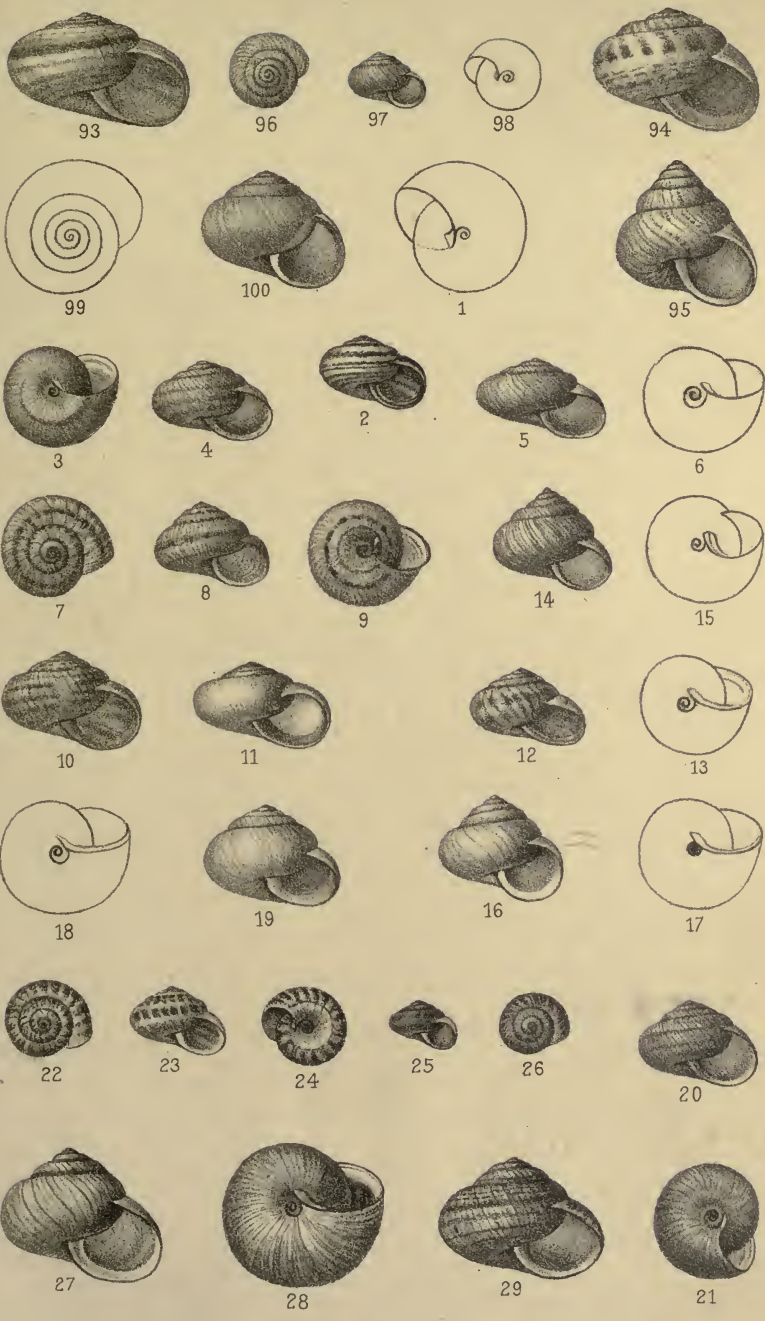
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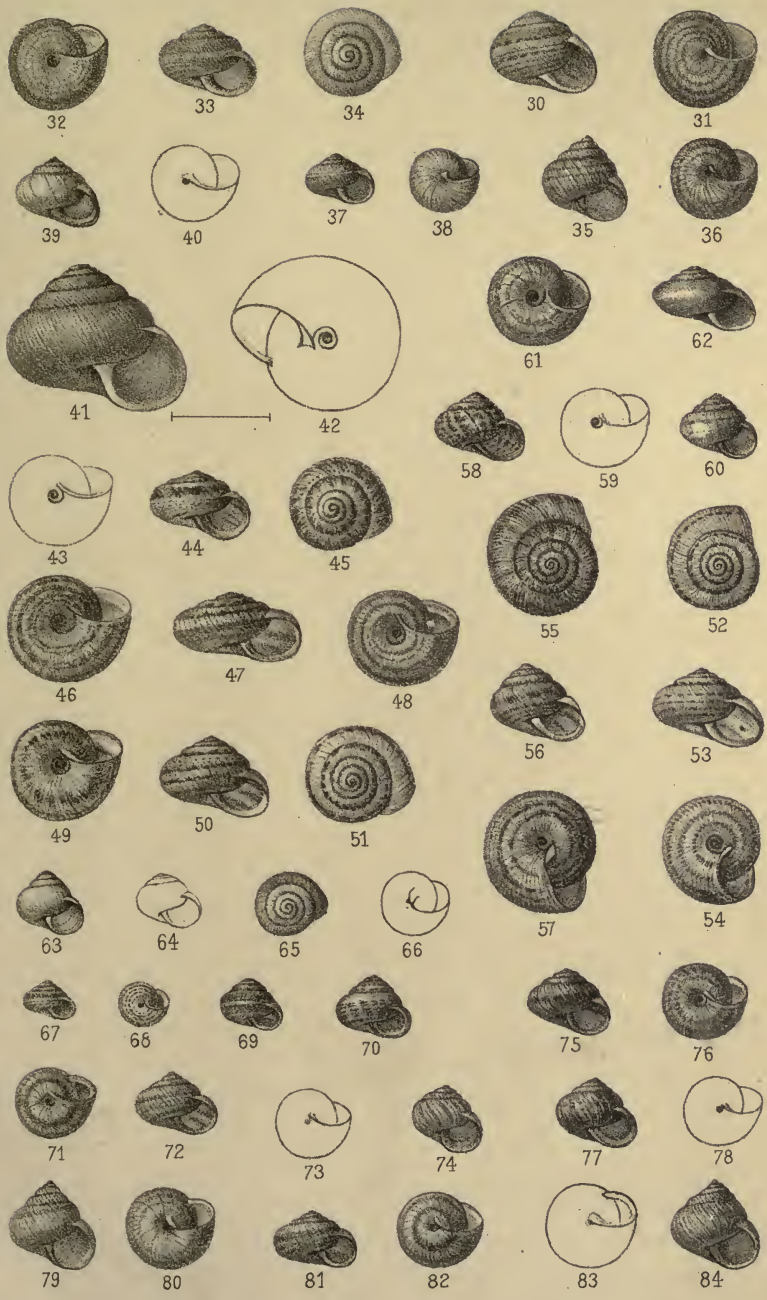
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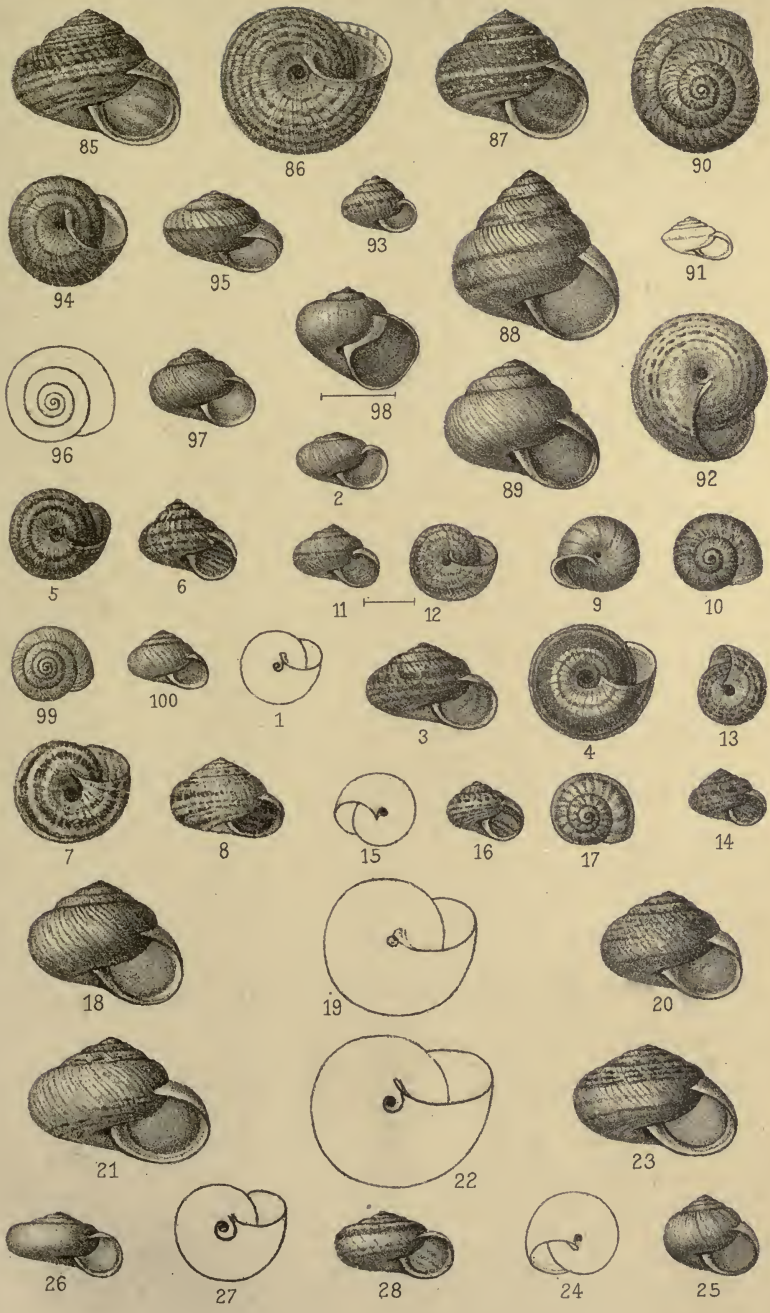
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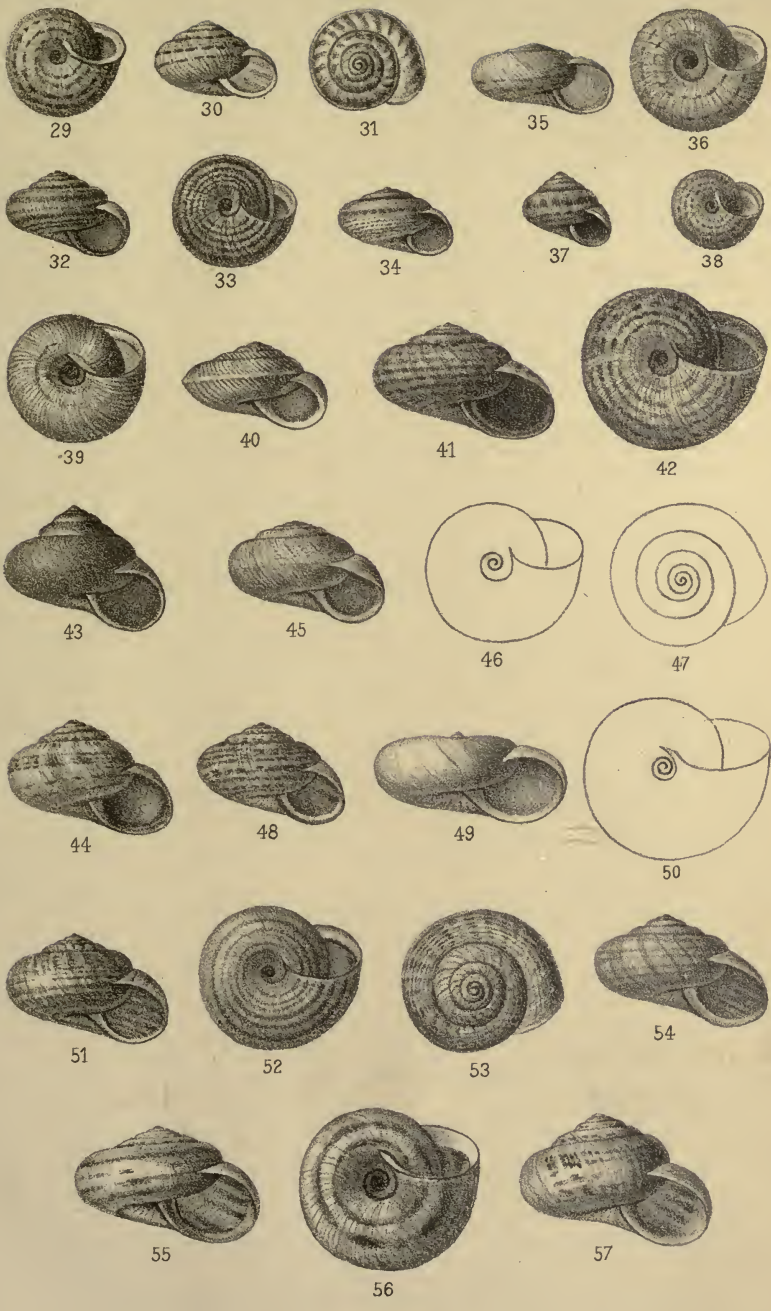
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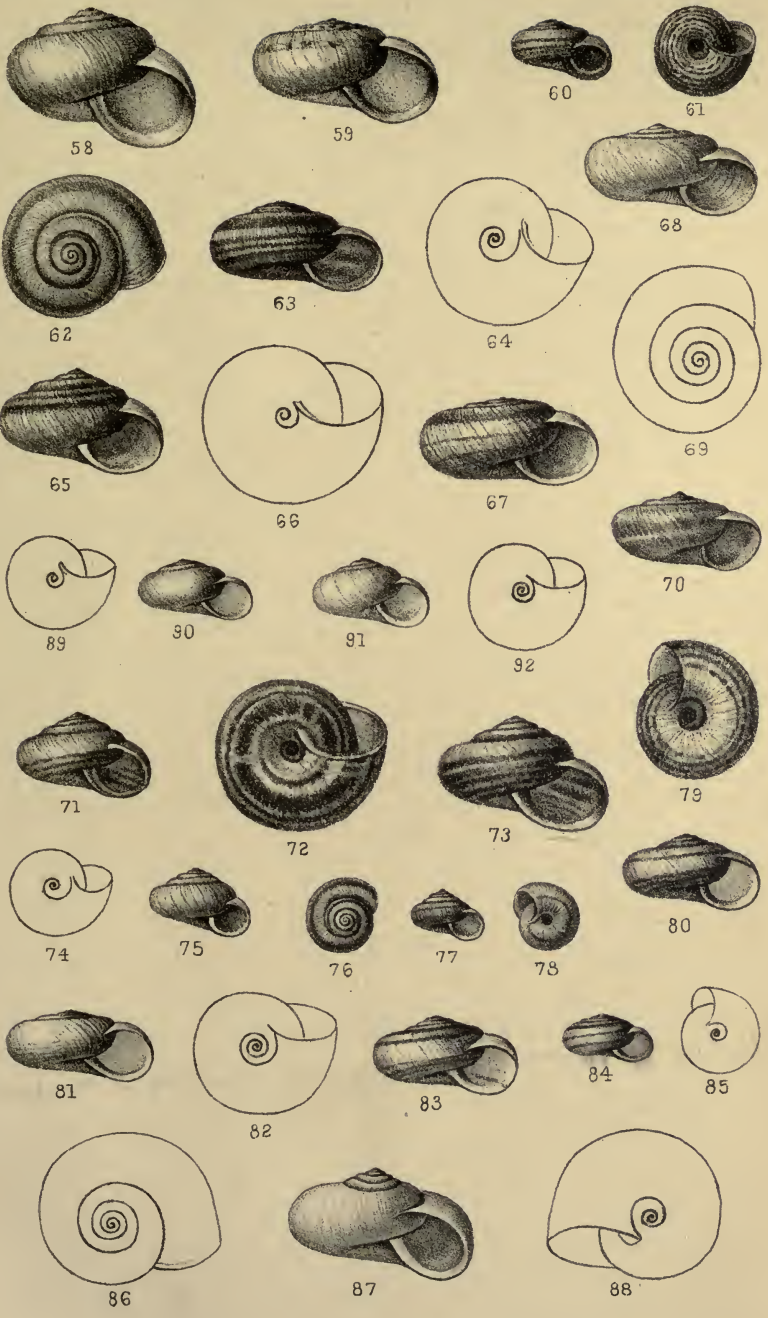
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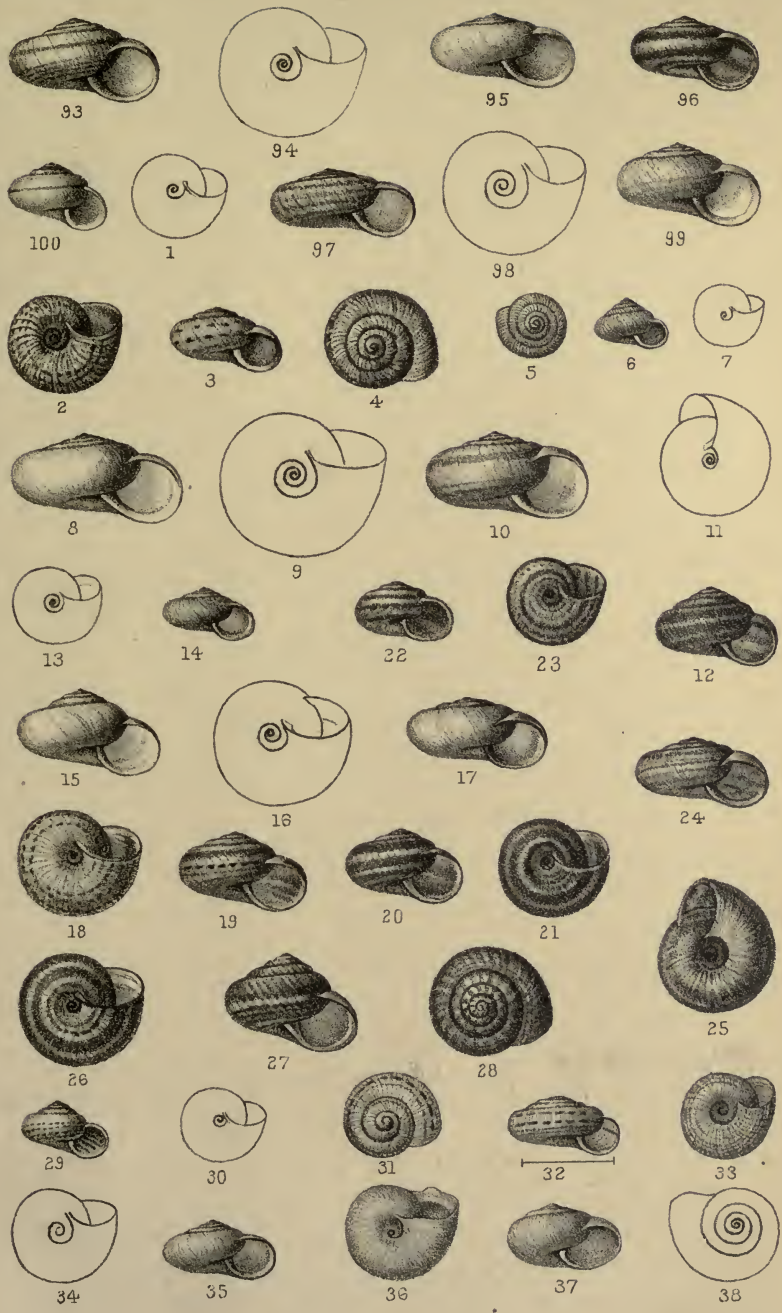
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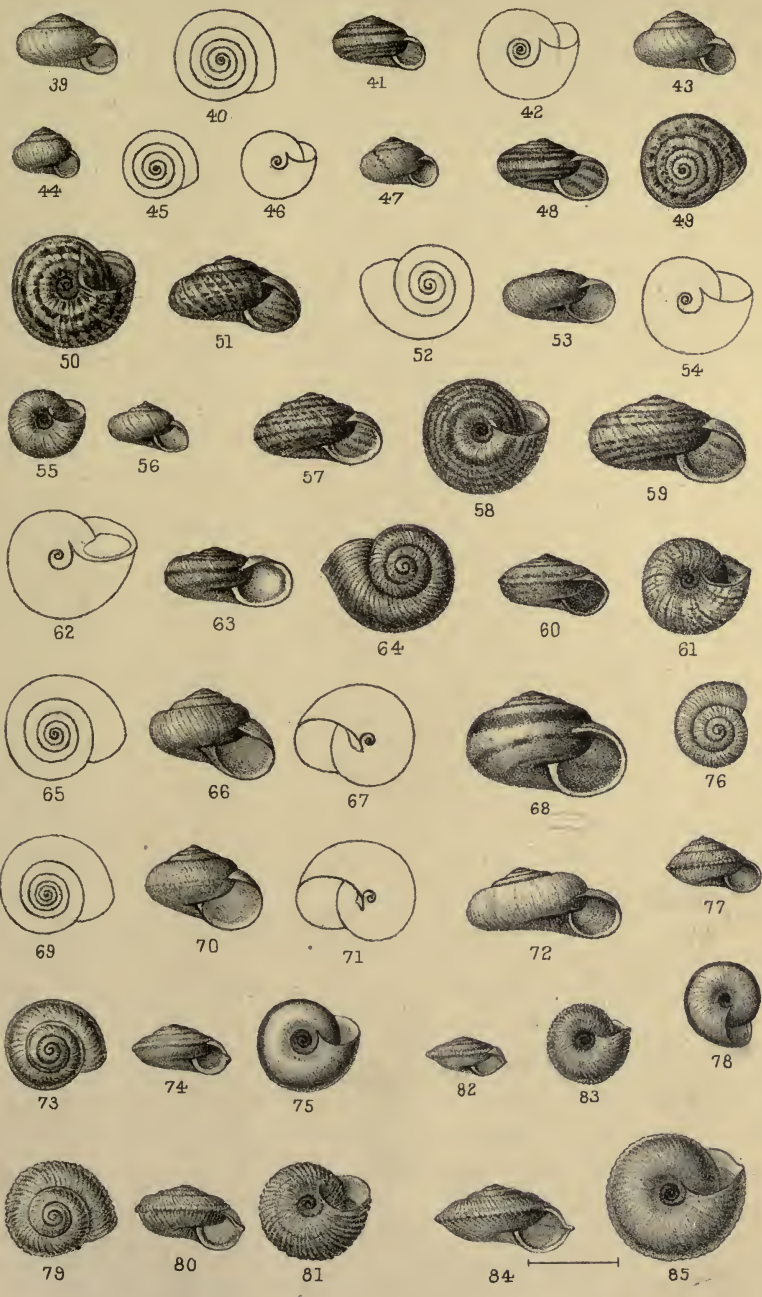
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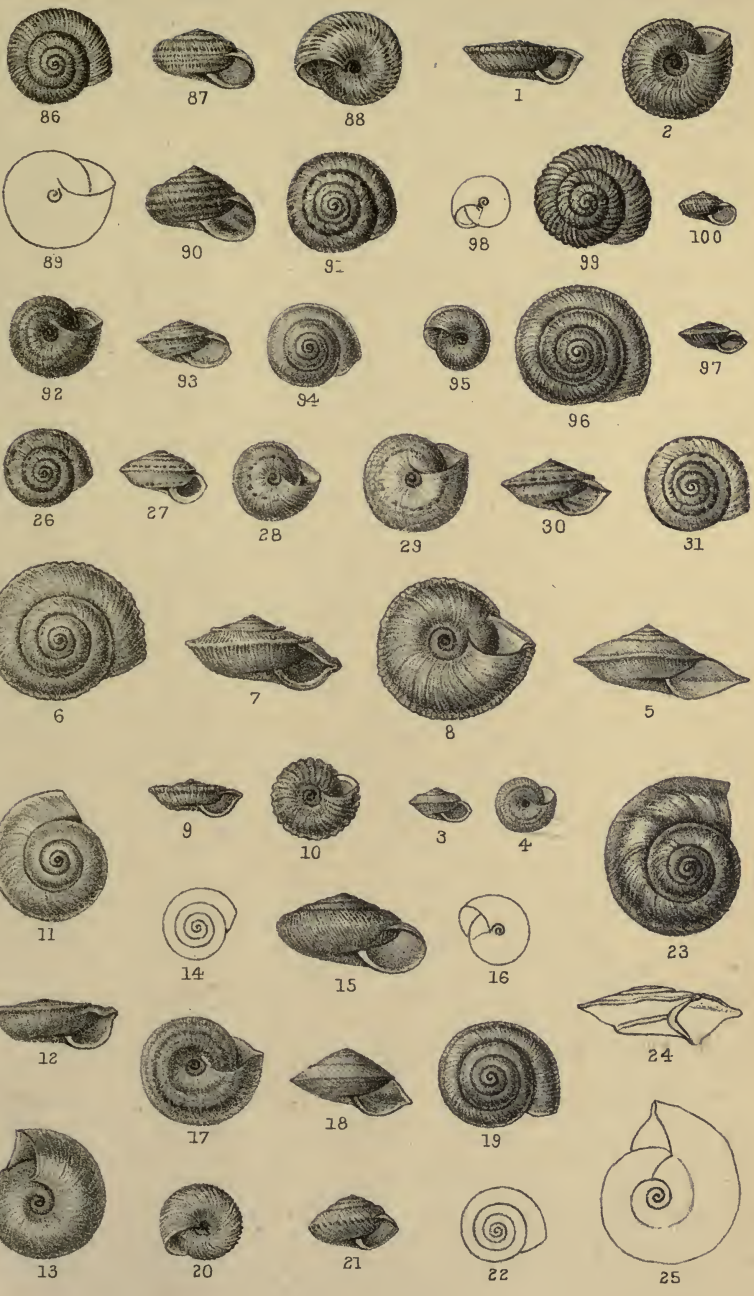
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